

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of
George J. Rebane
Serial No.: 09/538,570
Filed: March 29, 2000



Date: November 23, 2004

Examiner: Andre D. Boyce

Art Unit: 3623

Atty Docket No.: BIZ/99-0008

For: SYSTEM AND METHOD FOR DATA
COLLECTION, EVALUATION, INFORMATION
GENERATION, AND PRESENTATION

Commissioner for Patents
PO Box 1450
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Attn: Examiner Andre D. Boyce

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BRIEF BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

This is an appeal from a Final Rejection dated August 23, 2004. A Notice of Appeal was received by the Patent Office on September 27, 2004. This appeal brief is hereby filed with a request for a two-month extension of time and accompanying fee, thus extending the filing deadline for this appeal brief to January 27, 2005.

REAL PARTY IN INTEREST

The real party in interest is Shopzilla, Inc., (formerly BizRate.com, before name change) a corporation organized under the laws of the State of California, having a mailing address of 12200 W. Olympic Blvd., Suite 300, Los Angeles, CA, 90066.

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RELATED APPEALS AND INTERFERENCES

Neither Appellant, nor Appellant's legal representatives, nor the assignee are aware of any other appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in this pending appeal.

STATUS OF CLAIMS

Claims 1-11, 13-20, 22-24, 27, 31, 51, 53-55, 57, 58, 60, 62-67 and 89-95 remain pending in the application and are presented in attached Appendix A. All claims stand as finally rejected in the last Office action. However, these claims do not reflect the changes made by Appellant in the accompanying amendment.

STATUS OF AMENDMENTS

An amendment has been filed along with this brief to remove certain minor issues from appeal (see Issue No. 1 and related arguments), which does not require compliance with 37 C.F.R. § 1.116. See M.P.E.P. § 1207.

SUMMARY OF INVENTION

Before Appellant's invented this invention under appeal, many consumers and merchants—particularly those engaged in e-commerce—received inadequate or outdated commercial data. Application, page 9, line 20 to page 10, line 2. The present invention overcame several significant problems in the prior art (Application, page 9, lines 7-9), such as:

- Consumers' need to quickly locate the best desired merchants (Application, page 3, lines 4-12);
- Merchants' needs for dynamically monitored consumer and market information (Application, page 3, lines 13-21);
- High costs and inefficiencies in traditional consumer and marketing survey methods (Application, page 4, line 1 to page 5, line 22);
- Significant time delays in processing and evaluation survey data once it was obtained (Application, page 6, lines 1-17); and
- Critical problems in conducting remedial consumer surveys (Application, page 6, line 18 to page 7, line 4).

The assignee of the present application (through its predecessor), developed and implemented a novel system for providing timely and accurate information relating to sales, marketing, consumer satisfaction, and other commercial activities of participating businesses. Application, page 7, lines 5-18. This system essentially employs online consumer surveys and electronic data processing methods to report processed survey data as information valuable to participating merchants. *Id.* This system offers considerable, compelling advantages over traditional paper and telephonic consumer surveys. Application, page 7, line 19 to page 8, line 3. While the system addressed these disadvantages, the dynamics of the e-commerce marketplace demand faster and more accurate data gathering, processing, evaluation, and reporting of data and information. Application, page 8, lines 3-7.

The present invention builds on this past work by providing a novel data processing system that can discern trends and otherwise provide results based on a combination of novel processing modules. Application, page 8, line 19 to page 9, line 4. For example, inadequately small or noisy data sets often lead to inaccurate results, so conventional statistical evaluations favor gathering large amounts of data over time. Application, page 8, lines 8-18. However, merchants are under immense pressure in a rapidly changing e-commerce marketplace to acquire sound information correctly identifying consumer and market trends as quickly as possible. *Id.* The present invention resolves this dilemma by providing a system for processing data samples—even small or noisy data samples—into reliable consumer and market information based around various combinations or arrangements of the following components:

- A module for stabilizing small or noisy data samples;
- Modules that process data to provide useful statistical information and trends.
- Alarm modules that alert users to anomalous data values;
- Predictor modules that use recent historical and statistical data to predict future growth of a population to a maximum attainable level; and
- A dynamic measurement indicator that conveys to users of a system levels of predefined and ongoing activity occurring on another system.

Certain embodiments of the invention are summarized on pages 10-18 of the Application. See also page 9, lines 19. The environment in which the present invention may operate is as follows. Essentially, a consumer completes a survey questionnaire (see, e.g., FIGS. 1 and 2), and this raw data is processed and evaluated by the system

of the present invention (see, e.g., FIG. 3). For example, rapidly acquired, time-sensitive consumer data often is based on small sample sizes and can provide very noisy data. If such raw data is sent through a statistical information processing module, the resulting information can be inaccurate and misleading, which may not only be worthless to a merchant, but also potentially damaging if the merchant bases important business decisions on the misleading conclusions. However, coupling a data stabilization module to the system can smooth out the data before it is statistically processed, thus providing valuable information that is both accurate and time-sensitive. Further coupling saturation limit forecasting or alarm modules to the system can provide important feedback during the data gathering and information process, even in real time. Prior to the present invention, e-commerce consumers and merchants had to chose between accurate information that was old (or even outdated), or timely information that was potentially inaccurate and misleading. Now, however, thanks to Appellant's invention, consumers and merchants in the e-commerce marketplace have accurate, time-sensitive information on which to base their commercial and business decisions.

GROUPING OF CLAIMS

Appellant's representatives assent to the grouping of claims based on the grounds of rejection stated in the Office action dated August 23, 2004. This brief includes responses to every ground of rejection stated in this latest Office action. M.P.E.P. § 1206. For sake of clarity and brevity, arguments presented against each rejection rest only on the broadest claim of each group under the assumption that the Board will select the broadest claim in that group and will consider only that claim. See M.P.E.P. § 1206. If the Board considers any other claims from a group, Appellant's representatives request the opportunity to submit supplemental arguments for patentability of such claims.

ISSUES

1. Are claims 4-6, 8-11, 13-17, 22-24, 27, and 31 unpatentable under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Appellant regards as the invention?

2. Are claims 89-95 unpatentable under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter, particularly because independent claims 89 and 90 produce a useful result that is not required actually to be used?
3. Are claims 1-3, 8-11, 13-15, 19, 23, 51, 53-55, 62, 64-66, and 89-93 unpatentable under 35 U.S.C. § 103(a) over Papierniak et al.'s U.S. Pat. No. 6,128,624 in view of Lee et al.'s U.S. Pub. No. 2002/0072951 and further in view of Decker's U.S. Pat. No. 6,430,305?
4. Are claims 4-7, 17, 18, 20, 22, 24, 27, 31, 57, 58, and 60 unpatentable under 35 U.S.C. § 103(a) over Papierniak et al.'s U.S. Pat. No. 6,128,624 in view of Lee et al.'s U.S. Pub. No. 2002/0072951, further in view of Decker's U.S. Pat. No. 6,430,305, and further in view of Abu El Ata's U.S. Pat. No. 6,560,569?
5. Are claims 16, 63, 67, 94, and 95 unpatentable under 35 U.S.C. § 103(a) over Papierniak et al.'s U.S. Pat. No. 6,128,624 in view of Sundaresan's U.S. Pub. No. 2003/0033299?

ARGUMENT

1. Claims 4-6, 8-11, 13-17, 22-24, 27, and 31 are patentable under 35 U.S.C. § 112, second paragraph, because Appellant has submitted an amendment that removes this issue from appeal.

The Examiner rejected claims 4-6 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for having insufficient antecedent basis for the element "the presentation server." Each of claims 4-6 depends directly from claim 1. Appellant has removed this issue from appeal by amending claims 4-6 to conform to the language of claim 1.

The Examiner also rejected claim 8 under 35 U.S.C. § 112, second paragraph, alleging that the element "the module" was vague because it did not refer to one of the plurality of modules listed in the claim. Appellant has removed this issue from appeal by amending claim 8 to more clearly specify the intended module.

2. Claims 89-95 are patentable under 35 U.S.C. § 101 because the claimed invention is a presentation server (a machine) that produces a concrete, tangible, and useful result, regardless of whether that result is ever observed.

A machine claim is statutory when the machine, as claimed, produces a concrete, tangible, and useful result. *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F. 3d 1368, 1373, 47 U.S.P.Q.2d 1596, 1601 (Fed. Cir. 1998). Claims 89 and 90 are machine claims because each is directed to a presentation server that includes web pages containing data or information derived from certain processing modules.

As Appellant previously stated during prosecution, the present invention produces useful, concrete, and tangible results. See, e.g., Appellant's Amendment and Response to Office Action Dated December 9, 2003, submitted on 14 May 2004, page 17. Each module produces a concrete and tangible result such as smoothing data or indicating to users the activity levels at network sites using the physical system that is configured to present (output) the result. These results are then presentable or presented via the systems, methods, and servers claimed.

The Examiner rejected claims 89-95 under 35 U.S.C. § 101 because neither of independent claims 89 and 90 include an element that information derived from at least two processing modules "is actually presented or accessed, just that it is 'accessible'" (Office Action, 23 August 2004, page 5). The Examiner correctly states that the machines of Appellant's claims 89 and 90 each include web pages containing data or information that has been derived from at least two processing modules, just like the data processing system in *State Street Bank*. These web pages are "accessible to a plurality of remote merchant systems over a computer network" (see Appellant's claims 89 and 90), just as the financial services configuration of the machine in *State Street Bank* would be accessible to the user of its data processing system. The Examiner did not argue that the machines of claims 89 and 90 fail to produce a concrete, tangible, and useful result, only that the result is merely "accessible," rather than being "actually presented or accessed." See Office Action, 23 August 2003, page 5. The Examiner's argument implies that a useful process, machine, manufacture, or composition of matter must actually be used in order to meet the requirements of 35 U.S.C. § 101. However, this interpretation would read a new requirement into 35 U.S.C. § 101. A machine only must be "useful" and capable of providing some identifiable benefit to meet the statutory

requirements of 35 U.S.C. § 101—actually *being used* is not a requirement of the statute.

The text of the § 101 states that a patent may be obtained for “any new and *useful* process, machine, manufacture, or composition of matter, or any new and *useful* improvement thereof,” (emphasis added) and the courts have never held that any part of an invention must actually be used in order for a patent to be granted. The Federal Circuit has stated that “[t]he threshold of utility is not high: An invention is useful under section 101 if it is *capable of providing some identifiable benefit.*” *Juicy Whip, Inc. v. Orange Bang, Inc.*, 185 F.3d 1364, 1366, 51 U.S.P.Q.2d 1700 (Fed. Cir. 1999) (emphasis added), citing *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1571, 24 U.S.P.Q.2d 1401 (Fed. Cir. 1992) (“To violate § 101 the claimed device must be totally incapable of achieving a useful result”). Appellant’s invention is capable of providing the identifiable benefit of processing a collection of data and presenting the resulting information for later access, similar to the financial data processing system at issue in *State Street Bank*.

The data processing system of the *State Street Bank* (U.S. Pat. No. 5,193,056) was composed of seven structural elements (described using means-plus-function language), which the court summarized as a personal computer including a CPU, a data disk, a logic circuit to prepare the data disk to store selected data, and four data processing elements. See *State Street Bank*, 149 F. 3d at 1371. The Federal Circuit characterized the claimed invention by describing claim 1 of the patent: “[C]laim 1, properly construed, claims a machine, namely, a data processing system for managing a financial services configuration of a portfolio established as a partnership, which machine is made up of, at the very least, the specific structures disclosed in the written description and corresponding to the [...] elements (a)-(g) recited in the claim. A ‘machine’ is proper statutory subject matter under § 101.” *State Street Bank*, 149 F. 3d at 1372. The claimed invention in *State Street Bank* did not include any description of how the resulting data would be displayed, distributed, accessed, or otherwise manipulated outside of the machine itself, or even if the resulting data was in fact accessible outside the data processing system, yet this machine was found to be “proper statutory subject matter under § 101.” *Id.*

Section 101 states that a patentable invention must be “useful” only, and the Federal Circuit has repeatedly declined to read into § 101 any requirement that a machine actually be used in order for it to be useful. This interpretation of § 101 is

supported by the Office's own Examination Guidelines for Computer-Related Inventions (M.P.E.P. § 2106, 8th ed.).¹ The Guidelines describe one example of a claimed statutory process: "A computerized method of optimally controlling transfer, storage and retrieval of data between cache and hard disk storage devices such that the most frequently used data is readily available." The term "readily available" is synonymous with "accessible," yet the described process still meets the requirements of § 101.

For at least the reasons stated above, Appellant's claims 89 and 90 are patentable under § 101 and the holding of *State Street Bank*. Claims 91-95 depend directly or indirectly from claims 89 and 90. Apparently, the Examiner rejected claims 91-95 as being dependent on a rejected base claim and, therefore, claims 91-95 are patentable for the reasons provided for claims 89 and 90 and for their unique and novel combinations of features recited therein.

3. Claims 1-3, 8-11, 13-15, 19, 23, 51, 53-55, 62, 64-66, and 89-93 are patentable under 35 U.S.C. § 103(a) over Papierniak in view of Lee and further in view of Decker.

3.A. The cited references fail to teach all the elements of Appellant's claims.

3.A.1. The cited references fail to teach Appellant's dynamic activity-level icon module.

A *prima facie* case of obviousness requires three basic criteria:

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. *Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.* The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. M.P.E.P. § 706.02(j), citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added).

Furthermore, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970).

¹ Appellant understands that these Guidelines do not constitute substantive rule-making and do not have the full force and effect of law, and appellant is not appealing or petitioning any failure by Office personnel to follow the Guidelines. Instead, appellant simply refers to the Office's own guidelines as a persuasive interpretation of the relevant substantive law.

The Examiner rejected claims 1 and 8 under 35 U.S.C. § 103(a), alleging that Papierniak discloses most of the elements of these claims. See Office action dated 23 August 2004, pages 5-8. However, as Appellant has consistently argued, Papierniak does not disclose a dynamic activity-level processing module as recited in the claims, and neither do Lee or Decker. See, e.g., Appellant's Amendment and Response to Office Action Dated December 9, 2003, submitted on 14 May 2004, pages 17-18. The Examiner has failed to establish a *prima facie* case that claim 1 is obvious because the cited references fail to teach or suggest all features of the claim.

The Examiner argued that information from Papierniak's tracking module 300 can be presented to a user via a personalized user interface. The Examiner inferred that Papierniak's personalized generically described user interface is the same as Appellant's dynamic activity-level icons. The Examiner cited column 14, lines 18-21 and column 9, lines 36-42 of Papierniak as the basis for this inference. Office action dated 23 August 2004, page 5. Column 14, lines 18-21 of Papierniak provides only a vague and very general description of tracking data:

tracking module (WebTrack) 300: systems to find, search, collect and capture detailed customer Web/Internet and/or electronic commerce usage and demographics data.

Column 9, lines 36-42 of Papierniak describes how its invention could be used to manage Internet and/or e-commerce based applications from one of three perspectives:

Business Operations Management to monitor and understand:
Key business metrics (revenue, expenses, profitability, subscriber base).
Factors that impact quality of service.
The impact of marketing initiatives or competitive influences.

These generic descriptions fail to provide any detailed information about Appellant's dynamic activity-level icon module such as how that information arrives at a user interface or how it is presented on the user interface.

As described on pages 68-72 of the present patent application, Appellant's dynamic activity-level icon module is "a processing module that relates to the display of a dynamic icon that indicates to the user of a remote computer system some level of activity elsewhere in the system." The activity processed by this module and displayed as a dynamically changing icon could be current or recent buying activity for particular merchant (e.g., items purchased, sale prices, quantities purchased), all transactions (or subcategories of transactions) taking place at a merchant's site, consumer ratings information, level of Internet traffic at a merchant's website, special promotions or discounts, and other consumer-related information. A single dynamic icon can be

displayed to a user, or plural dynamic icons can be displayed. One exemplary dynamic is a dot that grows or shrinks in size as the corresponding activity level rises or falls. However, the dynamic icon can be virtually any other type of icon such as a numerical value, textual description of the activity, graphic image that connotes a level of activity (e.g., a colored dot), an aural indicator that verbally describes some level of activity, or any other suitable dynamic icon. Application, pages 68-72 and FIG. 18. The Papierniak reference fails to teach any of these features.

Furthermore, one of ordinary skill in the art reading the above-cited sections of Papierniak would arrive at only a general suggestion to find, search, and collect *customer data* as it relates to a the *business operations* (e.g., key business metrics such as revenue, expenses, profitability, and subscriber base; factors that affect quality of service; and the effects of marketing initiatives or competitive influences) of a *single* network site. There is no teaching or suggestion to dynamically and iconically displaying relative levels of *merchant activity* from a *plurality of network sites for different merchants*.

In contrast to Papierniak's generic descriptions, Appellant's claim 1 recites a "dynamic activity-level icon module for iconically indicating to the user of a remote computer system *relative levels of activity at network sites for different merchants* offering competitive goods or services" (emphasis added). Similarly, claims 8, 51, 89 and 90 have been amended to recite "a dynamic activity-level icon module for iconically indicating to the user of a remote computer system a level of activity at *each of a plurality of merchant network sites*, the module automatically causing the indication of activity to be sent to the remote computer system upon user access to an electronic page comprising a listing of a plurality of merchants" (emphasis added). These specific details are not disclosed in Papierniak or any other cited reference.

In view of the foregoing, all claims are patentably distinct over Papierniak and should be allowed.

3.A.2. The cited references also fail to teach Appellant's data stabilizer module, and in fact, teach away from Appellant's data stabilizer.

Claim 1 includes the feature of "a data stabilizer processing module for smoothing noisy or variable data using a computational solution of a minimum variance Bayesian estimation method . . ." This feature is discussed on pages 42-56 of the

application. The following excerpts highlight just a few characteristics of the data stabilizer processing module:

A central component of the schema of Fig. 7 is an Extended Kalman Filter or ("EKF"). The EKF is detailed in Fig. 8. Generally, the EKF uses a computational (recursive) solution of the minimum variance Bayesian estimation method. The EKF is powerful in several aspects: it supports estimations of past, present, and even future states. It can do so even when the precise nature of the modeled system is unknown. In addition to smoothing noisy data, evaluating small samples of data, and providing a basis for estimations, the EKF also provides a method of weighting data values according to the recency or level of noise corruption of the data. This may be important because, for example, data collected in a later portion of a data collection interval (data window) is likely to be more indicative of present trends than is data collected at the earlier portion of the interval (older data). Application, page 43, lines 9-20.

In one preferred embodiment, a true rating A is determined using an adaptation of an Extended Discrete Kalman filter. It is to be understood that the following embodiment is presented for purposes of illustration not limitation. Persons skilled in the art will appreciate that other adaptations of Kalman filters are within the scope and spirit of the present invention. In connection with the following discussion, reference may be made to Figs. 7 and 8, which help illustrate the principles being discussed. Hereinafter, a processing module that can smooth noisy or variable data using a computational (recursive) solution of the minimum variance Bayesian estimation method is referred to as a Data Stabilizer or "DS" for short. Application, page 44, lines 8-17.

The Office action cites column 4, lines 19-33 of the Decker reference as disclosing Appellant's data stabilization module:

At step 68 P_{sig} and $P_{non-sig}$ are combined to yield P , and P is evaluated at step 70 to compute the financial risk of the transaction. At step 72, it is determined whether the risk of accepting the transaction is less than the risk of denying the transaction. If the risk of accepting the transaction is less than the risk of denying the transaction, then the transaction is allowed at step 74. If the risk of accepting the transaction is greater than the risk of denying the transaction, then the transaction is denied at step 74. After completion of either of steps 72 or 74, the history database is updated at step 78.

The method of the present invention operates according to the known statistical problem of regression. If it is assumed that the probability estimates are independent, then there are pretty straightforward techniques for computing a best guess by Bayesian analysis.

However, the Examiner has consistently failed to explain why this single mention of "Bayesian analysis" in Decker discloses the data stabilization module of claim 1 as described in the specification. Decker describes none of the features of Appellant's data stabilization module. Decker does not describe smoothing noisy or variable data during ecommerce data collection, only "computing a best guess" as a basis for financial risk assessment in fraud detection, which is a completely different and distinct use of algorithm statistics and Bayesian analysis from that recited in the claims and discussed in the specification.

The term “Bayesian” describes a general concept of statistical analysis based on Bayes Theorem, the work of 18th Century British mathematician Thomas Bayes, and is broadly employed in thousands of scientific, sociological, and technological fields. One accepted dictionary definition of “Bayesian” is “being, relating to, or concerned with a theory (as of decision making or statistical inference) involving the application of Bayes’ theorem and the use of probabilities based on prior knowledge and accumulated experience.” Merriam-Webster Online dictionary (<http://www.m-w.com/>; January 25, 2004). An encyclopedia article describing Bayesian probability and its applications is appended in Appendix B. Essentially, “Bayesian analysis” describes any statistical method of using prior knowledge to assess the probability of some future event that can be employed in any endeavor requiring some statistical analysis. This method can be implemented mathematically in a myriad of ways in a myriad of applications. The appropriate implementation for one application may be inappropriate for another.

Given such a nebulous and far-reaching conceptual framework, Decker’s single use of “Bayesian analysis” teach or suggest Appellant’s data stabilization module to one of ordinary skill in the art—the term is simply too indefinite as used in Decker to enable any use suitable for smoothing of noisy data. Simply reading “Bayesian analysis” would not lead one of ordinary skill in the art directly to Appellant’s data stabilization module or the concept of smoothing noisy data using “*a computational solution of a minimum variance Bayesian estimation method*” as recited in Appellant’s claim 1, which is a distinct kind of Bayesian analysis. In short, the Examiner’s position is akin to finding a reference stating that “geometry” can be used in solving a civil engineering problem and then rejecting a claim that includes a specific theory of geometry not disclosed in the reference.

Furthermore, Decker expressly teaches away from the use of Bayesian methods:

The method of the present invention operates according to the known statistical problem of regression. If it is assumed that the probability estimates are independent, then there are pretty straightforward techniques for computing a best guess by Bayesian analysis. Those techniques are well known in the literature. *However, typically those probability estimates will not be completely independent, so regression methods that better handle correlated inputs are preferred.* Column 4, lines 29-36 (emphasis added).

One of ordinary skill in the art reading Decker would be led away from using any type of Bayesian analysis at all and, instead, would be led toward using regression methods—a different type of statistical analysis.

For at least these reasons, Decker fails to disclose the data stabilization module of claim 1, a fault that is not cured by either Papierniak or Lee. See Office action, page 6 ("Neither Papierniak nor Lee et al. disclose at least two processing modules including a data stabilizer processing module for smoothing noisy or variable data using a computational solution of a minimum variance Bayesian estimation method"). Therefore, the § 103 rejection based on Decker is improper and should be withdrawn.

3.B. Even if the cited references happened to disclose all elements of Appellant's claims, the references provide no suggestion or motivation to combine their teachings, and the Examiner has not supported with documentary evidence the assertion that such suggestion or motivation can be found in the common knowledge generally available to one of ordinary skill in the art.

As stated above, a *prima facie* case for obviousness has three basic criteria, including a teaching or suggestion to make the claimed combination. M.P.E.P. § 706.02(j), citing *Vaeck*, 947 F.2d 488, 20 USPQ2d 1438. The Examiner has the initial burden to provide some suggestion of the desirability of doing what Appellant has done by at least presenting a convincing line of reasoning as to why one of ordinary skill in the art would have found the claimed invention obvious in light of the teachings of the references. M.P.E.P. §706.02(j), citing *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). The rationale to combine or modify the references cited in an obviousness rejection must come from one of eight sources:

- An express statement in the prior art;
- An implicit disclosure in the prior art;
- Reliance logic and sound scientific theory;
- A similar rational from a prior legal decision having similar facts;
- An overlap or optimization of ranges;
- The selection of a known material based on its suitability for its intended use, the combination of two compositions known to be useful for the same purpose, or substituting equivalents known for the same purpose;
- The obviousness of a species when the prior art teaches a genus; or
- Close structural similarity between chemical compounds.

M.P.E.P. § 2144; internal citations omitted.

In the present case, the Examiner offers a conclusory statement asserting the motivation to combine the references as:

Papierniak, Lee et al., and Decker, are all concerned with marketing data collection, [and] therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a competitor analysis and

data stabilizer processing module in Papierniak, as seen in Lee et al and Decker, respectively, as additional means of analyzing collected data, thereby increasing the robustness of the Papierniak system. Office action dated 23 August 2004, page-7.

This statement directly contradicts the Examiner's assertion on page 6 of the Office action that neither Papierniak nor Lee discloses a data stabilization module. However, Appellant's representatives found no disclosure of a data stabilization module in Lee, and the Examiner cites only Decker asserting that the data stabilization module is somehow disclosed in these references.

Furthermore, the Examiner has not cited either an express statement or implicit disclosure in the prior art as the basis for this obviousness rejection. Nor has the Examiner relied on scientific theory, prior legal precedent, the selection of a known material based on its suitability for its intended purpose, a combination of two compositions known to be useful for the same purpose, or substituting equivalents known for the same purpose. The rejected claims are not directed to chemical compounds or ranges, and the Examiner has not asserted that the data stabilizer is some obvious species of a known genus. Therefore, the Examiner can rely only on the common knowledge of those skilled in the art as the basis for the obviousness rejection, and the Examiner has not properly done so.

The Examiner made a factual finding that one of ordinary skill in the art at the time the application was filed would have found it obvious to add the Bayesian analysis of Decker² to Papierniak to arrive at Appellant's claim 1 simply because both references "are concerned with marketing data collection." As stated below, Decker has little (if any) relation to marketing data collection—Decker relates to validating commercial transactions. One of ordinary skill in the art at the time Appellant filed this present patent application who read Papierniak would not be led to Decker any more than someone attempting to invent a better way to gather census data would be led to anti-forgery methods for drivers' licenses.

Under the Administrative Procedures Act, a "substantial evidence" standard is applied to such findings of fact. M.P.E.P. § 2144.03, citing *In re Gartside*, 203 F.3d 1305, 1315, 53 USPQ2d 1769, 1775 (Fed. Cir. 2000). The Examiner has offered no documentary evidence supporting her assertion that it would have been obvious to

² This statement is not an admission that Decker discloses Appellant's data stabilization module. As shown in Section 3.A.2, pages 11-13, Decker does not disclose Appellant's data stabilization module. However, even in the hypothetical case where Decker did happen to disclose Appellant's data stabilization module, the

combine Papierniak and Decker simply because both references relate to marketing data collection. In fact, as shown in Section 3.A.2, pages 11-13, Decker does not relate to marketing data collection. The Decker invention is directed to "methods for verifying the identity of a purchaser at a remote location for purposes of credit or cash debit transactions" and has nothing to do with collecting e-commerce data or marketing data generally. Decker's U.S. Pat. No. 6,430,305 (August 6, 2002), column 1, lines 5-9.

An examiner should take official notice unsupported by documentary evidence where the facts asserted are common knowledge in the art are capable of instant and unquestionable demonstration as to defy dispute. M.P.E.P. § 2144.03, citing *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970) and *In re Knapp Monarch Co.*, 296 F.2d 230, 132 USPQ 6 (CCPA 1961). More importantly, asserting "common knowledge" in the art without evidentiary support in the record is never appropriate:

It is never appropriate to rely solely on "common knowledge" in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based. [*In re Zurko*, 258 F.3d 1379, 1385, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001).] ("[T]he Board cannot simply reach conclusions based on its own understanding or experience—or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings."). While the court explained that, "as an administrative tribunal the Board clearly has expertise in the subject matter over which it exercises jurisdiction," it made clear that such "expertise may provide sufficient support for conclusions [only] as to peripheral issues." *Id.* at 1385-86, 59 USPQ2d at 1697. As the court held in *Zurko*, an assessment of basic knowledge and common sense that is not based on any evidence in the record lacks substantial evidence support. *Id.* at 1385, 59 USPQ2d at 1697. See also *In re Lee*, 277 F.3d 1338, 1344-45, 61 USPQ2d 1430, 1434-35 (Fed. Cir. 2002) (In reversing the Board's decision, the court stated "'common knowledge and common sense' on which the Board relied in rejecting Lee's application are not the specialized knowledge and expertise contemplated by the Administrative Procedure Act. Conclusory statements such as those here provided do not fulfill the agency's obligation..The board cannot rely on conclusory statements when dealing with particular combinations of prior art and specific claims, but must set forth the rationale on which it relies."). M.P.E.P 32144.03

Though the decision in *Zurko* applied to this Board, the *Zurko* reasoning extends to Examiners in the Office as well. Furthermore,

The Examiner has not set forth a rationale for combining Papierniak and Decker, the Examiner has offered only the (incorrect) conclusion that both "are concerned with marketing data collection." Even if this conclusion were true, the Examiner has not pointed to some concrete evidence to support this conclusion—the Examiner has only

asserted *prima facie* case of obviousness still would fail for lack of a motivation to combine Papierniak, Decker, and Lee.

reached this conclusion based on her own understanding, her own experience, or her own assessment of what would be basic knowledge or common sense in the art. See also M.P.E.P. §2144.08: "Explicit findings on motivation or suggestion to select the claimed invention should also be articulated in order to support a 35 U.S.C. 103 ground of rejection. [*In re Dillon*, 919 F.2d 688, 693, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (*in banc*)]; *In re Mills*, 916 F.2d 680, 683, 16 USPQ2d 1430, 1433 (Fed. Cir. 1990). Conclusory statements of similarity or motivation, without any articulated rationale or evidentiary support, do not constitute sufficient factual findings." Therefore, the Examiner has failed to establish a *prima facie* case that claim 1 is obviousness in light of the combination of Papierniak, Lee, and Decker.

3.C. Furthermore, the references used to construct the *prima facie* case for obviousness do not come from analogous arts.

Even if Decker happened to disclose Appellant's data stabilization module, and *even if* documentary evidence existed supporting the assertion that the motivation to combine Decker with the other references was found in the common knowledge of those ordinarily skilled in the art at the time the application was filed, the obviousness rejection still would be improper because Decker does not relate to an analogous art.

A reference used to establish an obviousness rejection must either be in the field of Appellant's endeavor or reasonably pertinent to the particular problem the Appellant addressed. M.P.E.P. § 2141.01(a), citing *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992) and *In re Deminski*, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); *In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992). "A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commanded itself to an inventor's attention in considering his problem." *In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992); see also *Wang Laboratories Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993) and *State Contracting & Eng'g Corp. v. Condotte America, Inc.*, 346 F.3d 1057, 1069, 68 USPQ2d 1481, 1490 (Fed. Cir. 2003) (where the general scope of a reference is outside the pertinent field of endeavor, the reference may be considered analogous art if subject matter disclosed therein is relevant to the particular problem with which the inventor is involved). The Decker reference is not analogous art because its

subject matter logically would not have commended itself to an inventor's attention in considering the same problem addressed in the present application, nor is Decker relevant to the particular problem.

Appellant's invention solves several problems related to collecting, evaluating, and presenting data, and generating useful information, related to e-commerce transactions, such as:

- Helping consumers quickly locate the best merchants for their needs;
- Helping merchants quickly obtain the most current and accurate marketing information;
- Overcoming problems inherent in traditional methods of administering and processing consumer surveys;
- Reducing the financial costs of consumer surveys;
- Reducing the time delays of consumer surveys to improve their accuracies;
- Assisting merchants wishing to take remedial action in the face of such surveys; and
- Facilitating subsequent consumer surveys.

See, e.g., application, page 2, line 16 to page 7, line 4. With the present invention, Appellant continued to address the problems of inaccuracies arising in the statistical analysis of e-commerce data resulting from inadequately small samples or noisy samples using a unique and novel combination of features. Application, page 8, line 8 to page 9, line 4.

The Decker invention does not concern itself with data or information *about* a commercial transaction; instead, Decker is concerned with whether a commercial transaction is valid. Decker's U.S. Pat. No. 6,430,305 (August 6, 2002), column 1, lines 47-49. The Decker reference discusses remote verification of identity for various purposes (security, credit card transaction verification, automated teller machine transaction verification, etc.) including identification of physical characteristics and other indicia (fingerprints, retinal patterns, and signature verification). *Id.* at column 1, lines 11-17. At most, the Decker reference relates to the external, objective validity of a commercial transaction as a whole, rather than the internal, subjective nature and content of a commercial transaction, such as quantity and type of goods or services ordered, the costs of those goods or services, consumer satisfaction, merchant ratings, and consumer demographic information. See, e.g., application, figures 1a-g and 2a-b. By analogy, Appellant can create better automotive evaluations for *Car & Driver*, *Consumer Reports*, and other magazines—evaluations that will help consumers understand automakers and their products and help automakers understand the consumer marketplace—while Decker is concerned solely with the accuracy of Vehicle

Identification Numbers (VINs). While the two different problems independently addressed in Decker and the present application are not mutually exclusive, an inventor would not look to Decker as a solution to the problems identified by the Appellant. Therefore, the Examiner's *prima facie* case also fails for lack of analogous arts in the cited references.

4. Claims 4-7, 17, 18, 20, 22, 24, 27, 31, 57, 58, and 60 are patentable under 35 U.S.C. § 103(a) over Papierniak in view of Lee, further in view of Decker, and further in view of Abu El Ata.

Claim 4, the broadest claim in this group, depends from claim 1. As stated above in Section 3, the § 103 rejection of claim 1 based on Papierniak, Lee, and Decker is inappropriate because the Examiner has failed to state a *prima facie* case of obviousness. Therefore, claim 1 is patentable over Papierniak, Lee, and Decker, and claim 4 also is patentable over these three references for the same reasons. Furthermore, claim 4 is patentable over the Papierniak, Lee, Decker, and Abu El Ata because Abu El Ata does not cure the deficiencies present in the lack of a *prima facie* of obviousness based on just Papierniak, Lee, and Decker.

4.A. Neither Decker nor Abu El Ata is from an analogous art

Including the Decker reference in this obviousness rejection is improper for the same reasons that it was improper to include Decker in the previous obviousness rejection.³

The Abu El Ata reference describes the construction and testing of models for an information system (a system of computer hardware and software components used for tracking, processing, and recording business information). See Abu El Ata, U.S. Pat. No. 6,560,569 (May 6, 2003), column 1, lines 22-42; column 1, lines 45-55; column 3, lines 39-45; and FIGS. 2-3 and 6. The Abu El Ata reference relates to problems faced by managers of large and complex information systems that suffer from inefficiencies or "bottlenecks" that slow or even stop the information system. *Id.* at column 1, lines 27-34. Previously known monitoring systems helped information system managers to identify these bottlenecks and determine where additional resources would be needed in an information system to correct the inefficiencies. *Id.* at column 1, lines 39-42. However,

³ *Supra*, Section 3.A.2, pages 11-13.

Abu El Ata goes beyond simply monitoring a system and offers a way for creating a model for a system that accurately models all its components even before such a new information system actually exists. *Id.* at column 1, lines 45-55. For the same reasons provided in the discussion of Decker,⁴ the art of designing an information system is not analogous to collecting e-commerce data from an information system. To continue the analogy provided above,⁵ Appellant's invention can be thought of as a new and better way to gather performance characteristics about different automobiles. In contrast, Abu El Ata's invention provides a way for automakers to virtually model different assembly line configurations before their factories are built.

An inventor in Appellant's position at the time the present application was filed, endeavoring to find a better way to collect, evaluate, and present e-commerce data, and generate information from that data, would not logically have sought out references describing how to model information systems carrying that e-commerce data. Appellant was attempting to find a better way to draw water from an existing well, not a better way to mathematically model well drilling and construction before its even begun. Like Decker, Abu El Ata is not from an analogous art, and therefore, it was improper for the Examiner to use Abu El Ata in this § 103 for the same reasons given for Decker.⁶

4.B. The cited references fail to teach all the elements of Appellant's claims.

As stated above, the combination of Papierniak, Lee, and Decker fails to teach all the features of Appellant's claim 1.⁷ Abu El Ata fails to correct this deficiency because it fails to teach the features missing from the combination of the other three references. Claim 4 depends from claim 1 and includes the additional features of a system having at least three processing modules from the group stated in claim 1 and a presentation server "for presenting selected items of data following sequential processing of data by the at least three selected processing modules."

The Examiner correctly states that Papierniak does not disclose Appellant's saturation limited forecasting module or the alarm filter module. Office action (August 23, 2003), page 10. The Examiner still argues that claim 4 is rendered obvious by the combination of Papierniak, Lee, Decker, and Abu El Ata because

⁴ *Id.*

⁵ *Supra*, Section 3.C, page 18.

⁶ *Supra*, Section 3.C, pages 16-18

⁷ *Supra*, Section 3.A, pages 8-13

Abu El Ata discloses models used to determine estimates for business and growth rates, including transaction rate and growth of volume (i.e. saturation forecasting, column 12, lines 24-32). Abu El Ata also discloses computational results (i.e. data rates) compared to a theoretically best or ideal case, with any deviation diagnosed (i.e., alarm filter, column 10-11, lines 66-67 and 1-4).

Claim 1 includes the feature of "an alarm filter module for monitoring data rates and sending a signal based on deviations from desired thresholds from a normative rate . . ." The alarm filter monitors data rates along any data channel and, while monitoring, initiates an alert when the actual data rate deviates from an expected, normative rate. Application, page 56, lines 16-28. For example, the alarm filter monitoring a data channel for the daily response rate to a merchant's questionnaire could initiate an alert when the monitored response rate drops significantly from the expected normative response rate. Application, page 56, line 29 to page 57, line 11. The merchant could then investigate why the survey response rate dropped significantly—perhaps consumers are purchasing goods elsewhere or there is a technical error in loading the survey onto a web page. Application, page 57, lines 11-21.

The Examiner asserted that Abu El Ata discloses Appellant's alarm feature at column 10, line 66 to column 11, line 4. However, Abu El Ata actually discloses a method of calibrating its modeling system:

The initial model 20 is then calibrated by comparing estimates obtained from the model 20 against information and benchmarks contained in the component library 50, and, if necessary, the estimation process 78 is repeated (see the previous discussion on the calibration process for FIG. 5).

In one embodiment of the invention, this calibration process is accomplished through three steps as described in the following:

The first step is a walk through in which each assumption used in the model construction is validated.

The second step consists of comparing the computed values of the model 20, 22 without any distinction of the mode of operation in each class of users (Batch, Transactional, Real Time) to the measured values. Usually, through a fully automated iterative process, the information design system 10 is able to provide very acceptable accuracy for the computed model 20, 22.

The third step consists of moving different classes of applications, each in its mode of operation category, to the appropriate place in the model structure. Typically, computation results obtained are in agreement with those obtained in the second step, but this is not always the case. In many cases the model 20, 22 computed in this step is theoretically a best or ideal case of the reality and any deviation should be diagnosed. The results of the model 20, 22 show either an agreement or a faster response. If the results are a faster response, these results are an indication of non-modeled phenomenon, non-captured events or workload independent overhead.

After the initial model 20 is calibrated, additional models 22 are then constructed in an assessment and prediction process, calibrated and evaluated based on their performance. This process may lead to changes in the assumptions and estimates in an estimation change process 82 made for the proposed information system (see also FIG. 5). A preferred model selected from the initial

model 20 and additional models 22 is then implemented as an actual information system 74. The performance of the actual information system 74 is compared with the predicted performance of the preferred model in a verification process 86. If the performance is not what is expected, then the whole process may return to the initial steps of designing an architecture for a target system 70 and a new round of estimates using the estimation process 78.

Abu El Ata, U.S. Pat. No. 6,560,569 (May 6, 2003), column 10, line 47 to column 11, line 23 (emphasis added to column 10, line 66 to column 11, line 4, cited by the Examiner as the basis for the obviousness rejection). This calibration method describes how the modeling process for an information system can be improved to more accurately model the eventual information systems that actually will be built. The calibration method compares *computation results* obtained in the third step with the *computation results* of the second step. In contrast, Appellant's alarm filter monitors an ongoing, dynamically changing *data rate* flowing through a data channel—a feature not described in Abu El Ata. Nor does Abu El Ata disclose Appellant's saturation limited forecast module.

Appellant's saturation limited forecast module uses "available historical or recently captured data along with an estimated and/or available saturation population function as the basis for an algorithm that defines the growth of the population to a maximum attainable level." Application, claim 1. This module employs a saturation limited forecast model

that forecasts the growth of a population from a set of early observations. This model may be integrated into system 5 as a processing module 22. The SLF Model may be used to predict various values of interest to businesses. The forecasting methodology for e-commerce measures and consumer behaviors may be advantageously based on the saturation limited forecasting model of the present invention. For example, the model may be used to predict sales volumes for a category or categories of goods or services; number of females over the age of 18 participating in e-commerce; number of merchants offering a certain category of goods or services. Values for e-commerce measures and consumer behaviors, such as the foregoing may be referred to herein as "e-commerce populations." An example of an SLF Model is more specifically shown in Fig. 10 as processing module 222.

More specifically, the SLF processing module uses available recent historical data along with an estimated and/or available saturation "population" function as the basis for a differential equation that defines the growth of a "population" to a maximum attainable level.

Column 12, lines 15-32 of Abu El Ata describes the use of certain types of estimates as part of the descriptive input used as the basis for modeling an information system:

The descriptive input 12 also includes estimates determined by an estimation process 78. In one embodiment, a designer of the information system makes these estimates and enters them into a user interface provided by the input module 16 of the information design system 10. In another embodiment, the information design system 10 provides an analytic or expert system module

which makes these estimates based on the input 12 and information obtained from the component libraries 50.

One set of estimates is for business volume and growth rate. For example, these estimates include the number of transactions per business process, the weight of transaction type per business process, and the growth in business volume per year. The growth in business volume per year is included to make determinations later about whether the proposed information design system can handle a growth in volume readily (see the discussion of the aging ratio provided later).

See also Abu El Ata, U.S. Pat. No. 6,560,569 (May 6, 2003), FIGS. 1, 3, and 7.

Examples of business volume cited in Abu El Ata include the number of debit/credit transactions, the number of trades (such as matched orders in a stock exchange), and/or number of bills. Abu El Ata, U.S. Pat. No. 6,560,569 (May 6, 2003), column 11, lines 29-33. The business growth rate estimate is used to predict how long a particular information system might efficiently handle the requirements of the business using the information system. *Id.* at column 12, lines 24-32 and column 15, lines 32-57. The estimates of business volume and growth rate are part of the descriptive input used to model possible information systems for that particular business. To continue with the previous analogy, if an information system is analogous to a well of water, then estimates of business volume and growth rates would be analogous to estimates for rainfall amounts and frequencies—part of the descriptive input used to determine how quickly a well of a certain size, shape, and depth would fill up, thus requiring extensions and modifications, or an entirely new well.

The Abu El Ata invention uses estimates of business volume and growth rate to determine the business transactions would overflow a modeled computer system (like a well overflowing with water). Abu El Ata does not speak of the use of saturation population function as the basis of any algorithm, nor does the reference describe any algorithm that defines growth of a population to a maximum attainable level.

In contrast, Appellant's invention uses a saturation limited forecast module to determine when a particular population would reach its maximum attainable level when processing an entire body of e-commerce data. For example, the saturation limited forecast model could be used to determine the maximum sustainable sales volume of computer games among persons aged 18 to 34, or the maximum sustainable number of merchants selling consumer electronics. The Abu El Ata reference relates to business transactions flowing through a business's computer system and how well that information system handles the transaction load; Appellant's invention looks to the maximum attainable level of business transactions as one basis for

determining what those transactions mean to the business and consumers. In other words, Appellant's saturation limited forecast module is analogous to estimating the maximum attainable rainfall for a particular geographic area based on wind patterns, temperature data, geological features, land use, humidity fluctuations, and other geological and meteorological information. Abu El Ata does not disclose Appellant's saturation limited forecasting module.

Therefore, for all the reasons stated above, the four cited references fail to teach all features of Appellant's claims, the Examiner has not presented a *prima facie* case of obviousness, and the claims are patentable over the four cited references.

5.C. Even if the four cited references happened to disclose all elements of Appellant's claims, the references provide no suggestion or motivation to combine their teachings, and the Examiner has not supported with documentary evidence the assertion that such suggestion or motivation can be found in the common knowledge generally available to one of ordinary skill in the art.

The Examiner asserts that the motivation to combine the four references—Papierniak, Lee, Decker, and Abu El Ata—existed in the common knowledge within the art at the time the application was filed:

Papierniak and Abu El Ata are concerned with data manipulation, therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a saturation limited forecasting module, and an alarm filter module in Papierniak, as seen in Abu El Ata, as additional means of analyzing collected data, thereby increasing the robustness of the Papierniak system.

Office action (August 23, 2004), page 11. The legal requirements for finding a suggestion or motivation to combine references are discussed above in relation to the Decker reference.⁸ For similar reasons stated in opposition to the Examiner's obviousness rejection based on Papierniak, Lee, and Decker, the Examiner has failed to state a *prima facie* case of obviousness based on Papierniak, Lee, Decker, and Abu El Ata.

Papierniak and Abu El Ata involve data manipulation, but the same could be said about any invention having any element or aspect of computation—including any invention related to the computer or the abacus. Simply stating that both references involve data manipulation is not sufficient to meet the element of a suggestion or

motivation to combine the references to establish a *prima facie* case for obviousness.

Papierniak relates to

a computer architecture and method for integrating data elements from Internet service providers (ISP) and commerce service providers (CSP) operational database(s) into predetermined format for supporting collection of Internet and/or electronic commerce data, and more particularly, to a computer architecture and method for integrating data elements from commerce service providers's operational database(s) into predetermined format for supporting collection of Internet and/or electronic commerce data over or from the World Wide Web for ISPs and CSPs.

Papierniak et al., U.S. Pat. No. 6,128,624 (October 3, 2000), column 1, lines 8-18. This invention provides a computer system and method for supporting e-commerce data collection based on an ISP's or CSP's own databases. Both the Papierniak invention and Appellant's own invention involved collecting, processing, and analyzing e-commerce data, though the inventions do so in distinctly different ways. In contrast, Abu El Ata's invention relates to designing and modeling computer systems:

The invention relates to systems and methods for monitoring, managing, and diagnosing information systems, and more particularly to systems and methods for designing and modeling information systems.

Abu El Ata, U.S. Pat. No. 6,560,569 (May 6, 2003), column 1, lines 15-18. The Examiner offers only the conclusory statement that one of ordinary skill in the art would combine these references because they are "concerned with data manipulation." This argument is analogous to asserting that an Olympic figure skating judge would study the coaching and management of hockey teams because judging figure skaters and managing a hockey team both relate to ice rinks. The Examiner has not set forth a rationale for combining Papierniak and Abu El Ata, the Examiner has offered only the (incorrect) conclusion that both "are concerned with data manipulation." Even if this conclusion were true, the Examiner has not pointed to some concrete evidence to support this conclusion—the Examiner has only reached this conclusion based on her own understanding, her own experience, or her own assessment of what would be basic knowledge or common sense in the art. Therefore, this is just one reason why the Examiner has failed to establish a *prima facie* case that claim 4 is obviousness in light of the combination of Papierniak, Lee, Decker, and Abu El Ata.

5. Claims 16, 63, 67, 94, and 95 are patentable under 35 U.S.C. § 103(a) over Papierniak in view of Sundaresan.

⁸ *Supra*, Section 3.B, pages 13-16.

5.A. Appellant has sworn behind Sundaresan in a Rule 131 declaration and the Examiner has not stated why this declaration is ineffective to overcome the reference.

Appellant submitted a Rule 131 declaration from the inventor and Appellant, George Rebane, in which he swore behind the filing date of Sundaresan (January 20, 2000). In response to this submission, the Examiner stated that the declaration is "insufficient to establish diligence from a date prior to the date of reduction to practice of the Sundaresan reference" (Office action dated 23 August 2004, page 3). The evidence submitted with the declaration demonstrates a reduction to practice, at least circumstantially, but Appellant is prepared to submit additional evidence showing reduction to practice if necessary.

The declaration was made by the inventor of the claimed subject matter. 37 C.F.R. § 1.131(a); M.P.E.P. § 715.04. The declaration includes the declarant's acknowledgment that willful false statements and the like are punishable by fine or imprisonment or both (18 U.S.C. § 1001) and may jeopardize the validity of the application or any patent issued thereon. 37 C.F.R. § 1.68; M.P.E.P. § 715.04. And the Sandaresan patent does not claim the same patentable invention as the present application. 37 C.F.R. § 1.131(a); M.P.E.P. § 715.

The declaration is supported by two exhibits. Exhibit 1 is an undated set of notes describing a "ThruFlow System" describing Appellant's invention. Exhibit 2 is a draft public announcement of assignee's "E-Kommerce Graph™ or EKG™ service." The background material for this public announcement—dated August 11, 1998—describes the system and methods of the present application. The present invention was conceived at least as early as August 11, 1998, roughly eighteen months prior to when Sundaresan was filed. Therefore, the declaration establishes the priority of Appellant's invention by documented facts, not just allegations. 37 C.F.R. § 1.131(a); M.P.E.P. § 715.07. The transition from a set of notes and background materials to a public announcement at least circumstantially presents facts sufficient to establish Appellant's diligence from conception to reduction to practice.

The Examiner has not stated why she believes Appellant failed to traverse the obviousness rejection based on Papierniak and Sundaresan. Merely stating that the submitted declaration "is ineffective to overcome the Sundaresan reference" is not a

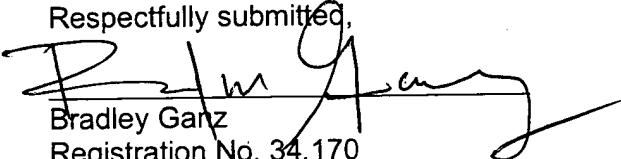
complete answer to Appellant's traversal and offers no substantive answer to it. See 37 C.F.R. § 1.104; M.P.E.P. § 707.07 and 707.07(f) ("Where the Appellant traverses any rejection, the examiner should take note of the Appellant's argument and answer the substance of it."). Circumstantial evidence is still factual evidence, and the Examiner has not met her burden of taking note of Appellant's argument and answering the substance of it. *Id.* If the Examiner provides more specific arguments about why the facts presented with this declaration are insufficient, Appellant can submit additional factual evidence to supplement the declaration.

CONCLUSION

For one or more of the reasons set forth above, the Board is respectfully requested to reverse the Examiner's rejection of all claims that currently stand rejected and to confirm the patentability thereof. If any additional fees related to this Appeal Brief or the Amendment filed herewith are due, please charge any such fees, or credit any overpayment, to Deposit Account No. 50-1001.

Respectfully submitted,

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Appendix A—Pending Claims

1. A system, comprising:

a plurality of processing modules configured for performing a predefined set of operations on data received from a data source, at least two processing modules being selected from the group consisting of: a data stabilizer processing module for smoothing noisy or variable data using a computational solution of a minimum variance Bayesian estimation method; a saturation limited forecasting module for using available historical or recently captured data along with an estimated and/or available saturation population function as the basis for an algorithm that defines the growth of the population to a maximum attainable level; a dynamic activity-level icon module for iconically indicating to the user of a remote computer system relative levels of activity at network sites for different merchants offering competitive goods or services; and an alarm filter module for monitoring data rates and sending a signal based on deviations from desired thresholds from a normative rate; and

wherein the system is configured for presenting selected items of data following the sequential processing of data by the at least two selected processing modules.

2. The system of claim 1 wherein the data source comprises one or more remote computer systems.

3. The system of claim 2 wherein the system is adapted to receive and process data related to an online e-commerce transaction.

4. The system of claim 1 wherein at least three of said processing modules are selected and the presentation server is for presenting selected items of data following the sequential processing of data by the at least three selected processing modules.

5. The system of claim 1 wherein four of the processing modules are selected and the presentation server is for presenting selected items of data following the sequential processing of data by the at least four selected processing modules.

6. The system of claim 1 wherein all five of the processing modules are selected and the presentation server is for presenting selected items of data following the sequential processing of data by the at least five selected processing modules.

7. The system of claim 3 wherein at least three of said processing modules are selected.

8. A system, comprising:

 a plurality of processing modules configured for performing a predefined set of operations on data relating to e-commerce transaction received from a first plurality of remote computer systems, at least two processing modules being selected from the group consisting of: a data stabilizer processing module for smoothing noisy or variable data using a computational solution of a minimum

variance Bayesian estimation method; a saturation limited forecasting module for using available historical or recently captured data along with an estimated and/or available saturation population function as the basis for an algorithm that defines the growth of the population to a maximum attainable level; a dynamic activity-level icon module for iconically indicating to the user of a remote computer system a level of activity at each of a plurality of merchant network sites, the module automatically causing the indication of activity to be sent to the remote computer system upon user access to an electronic page comprising a listing of a plurality of merchants; and an alarm filter module for monitoring data rates and sending a signal based on deviations from desired thresholds from a normative rate;

wherein the system is configured to present to a second plurality of remote computer systems via a computer network a set of items or data generated from the sequential processing of the data by the at least two processing modules.

9. The system of claim 8 wherein the system is configured to receive e-commerce data over the Internet.
10. The system of claim 9 wherein the data generated by the processing modules is presented over the Internet to a second plurality of remote computer systems comprising consumer computer systems.

11. The system of claim 9 wherein the system is configured to serve a survey questionnaires to first plurality of remote computer systems, the system being configured to receive data supplied in response to a survey and to process the data using the selected processing modules.
13. The system of claim 10 wherein the second plurality of remote computer systems comprise one or more merchant computer systems.
14. The system of claim 10 wherein the second plurality of remote computer systems comprise a plurality of consumer computer systems.
15. The system of claim 10 wherein the system is configured to present the processed data to a plurality of merchant and consumer computer systems.
16. The system of claim 10 wherein the presented data comprises ratings for online merchants, the ratings being based on data received from the first plurality of remote computer systems, wherein the first plurality comprises consumer computer systems.
17. The system of claim 14 wherein at least three of the processing modules are selected for sequential processing of the data.
18. The system of claim 1 wherein one selected processing module comprises a data stabilizer processing module and one selected processing module comprises an alarm filter module.

19. The system of claim 1 wherein one selected processing module comprises a data stabilizer processing module and one selected processing module comprises a dynamic activity-level icon module.
20. The system of claim 1 wherein one selected processing module comprises a data stabilizer processing module and one selected processing module comprises a saturation limit forecasting module.
22. The system of claim 15 wherein one selected processing module comprises a data stabilizer processing module and one selected processing module comprises an alarm filter module.
23. The system of claim 15 wherein one selected processing module comprises a data stabilizer processing module and one selected processing module comprises a dynamic activity-level icon module.
24. The system of claim 15 wherein one selected processing module comprises a data stabilizer processing module and one selected processing module comprises a saturation limit forecasting module.
27. The system of claim 23 further comprising an alarm filter processing module.
31. The system of claim 14 further comprising a dynamic activity-level icon processing module.

51. A computer implemented method, comprising:

capturing data from a first plurality of remote computers systems over the Internet;

performing a predefined set of operations on data received from the first plurality of computer systems at least two processing modules being selected from the group consisting of: a data stabilizer processing module for smoothing noisy or variable data using a computational solution of a minimum variance Bayesian estimation method; a saturation limited forecasting module for using available historical or recently captured data along with an estimated and/or available saturation population function as the basis for an algorithm that defines the growth of the population to a maximum attainable level; a dynamic activity-level icon module for iconically indicating to the user of a remote computer system a level of activity at each of a plurality of merchant network sites, the module automatically causing the indication of activity to be sent to the remote computer system upon user access to an electronic page comprising a listing of a plurality of merchants; and an alarm filter module for monitoring data rates and sending a signal based on deviations from desired thresholds from a normative rate, the one or more processing modules outputting processed data or information; and

presenting selected items of processed data or information

following the sequential processing of the data using the at least two processing modules.

53. The method of claim 51 wherein the captured data relates to e-commerce transactions.
54. The method of claim 53 wherein the e-commerce transactions comprise consumer-merchant transactions.
55. The method of claim 53 wherein the e-commerce transactions comprise business to business transactions.
57. The method of claim 51 wherein at least three of said processing modules are selected.
58. The method of claim 51 wherein four of the processing modules are selected.
60. The method of claim 54 wherein at least three of said processing modules are selected.
62. The method of claim 54 further comprising serving a survey questionnaire to the first plurality of remote computer systems, and, and capturing completed survey data for use in the selected processing modules.
63. The method of claim 62 wherein the first plurality of computer systems comprise a plurality of consumer computer systems and the survey data relates to an online transaction between a consumer and a merchant.

64. The method of claim 54 wherein the first plurality of computer systems comprise one or more merchant computer systems.
65. The method of claim 51 wherein the processed data is presented to a plurality of merchant computer systems.
66. The method of claim 51 wherein the processed data is presented to a plurality of consumer computer systems.
67. The method of claim 66 wherein the data comprises ratings for online merchants.
89. A presentation server that includes web pages containing data or information that has been derived from at least two processing modules selected from the group consisting of: a data stabilizer processing module for smoothing noisy or variable data using a computational solution of a minimum variance Bayesian estimation method; a saturation limited forecasting module for using available historical or recently captured data along with an estimated and/or available saturation population function as the basis for an algorithm that defines the growth of the population to a maximum attainable level; a dynamic activity-level icon module for iconically indicating to the user of a remote computer system a level of activity at each of a plurality of merchant network sites, the module automatically causing the indication of activity to be sent to the remote computer system upon user access to an electronic page comprising a listing of a plurality of merchants; and an alarm filter module for monitoring data rates and sending a signal based on deviations from

desired thresholds from a normative rate, the web pages being accessible to a plurality of remote merchant systems over a computer network.

90. A presentation server that includes web pages containing data or information that has been derived from at least two processing modules selected from the group consisting of: a data stabilizer processing module for smoothing noisy or variable data using a computational solution of a minimum variance Bayesian estimation method; a saturation limited forecasting module for using available historical or recently captured data along with an estimated and/or available saturation population function as the basis for an algorithm that defines the growth of the population to a maximum attainable level; a dynamic activity-level icon module for iconically indicating to the user of a remote computer system a level of activity at each of a plurality of merchant network sites, the module automatically causing the indication of activity to be sent to the remote computer system upon user access to an electronic page comprising a listing of a plurality of merchants; and an alarm filter module for monitoring data rates and sending a signal based on deviations from desired thresholds from a normative rate, the web pages being accessible to a plurality of remote consumer computer systems over a computer network.

91. The presentation server of claim 89 wherein the network comprises the Internet.

92. The presentation server of claim 90 wherein the network comprises the Internet.

93. The presentation server of claim 91 wherein the web pages include evaluation information about merchant performance, the information being derived from data processed by a selected processing module.

94. The presentation server of claim 92 wherein the web pages include ratings of merchant websites, the ratings being derived from data processed by a selected processing module.

95. The presentation of claim 90 wherein the web pages include ratings information for one or more products; the ratings information being derived from data captured from remote computer systems.

Appendix B—Encyclopedia Entry for Bayesian Probability

The appended entry was taken from the Wikipedia online encyclopedia (<http://en.wikipedia.org/>) on January 26, 2005.

Bayesian probability

From Wikipedia, the free encyclopedia.

Bayesianism is the philosophical tenet that the mathematical theory of probability applies to the degree of plausibility of statements, or to the degree of belief of rational agents in the truth of statements; when used with Bayes theorem, it then becomes Bayesian inference. This is in contrast to frequentism, which rejects degree-of-belief interpretations of mathematical probability, and assigns probabilities only to random events according to their relative frequencies of occurrence. The Bayesian interpretation of probability allows probabilities assigned to random events, but also allows the assignment of probabilities to any other kind of statement.

Whereas a frequentist and a Bayesian might both assign probability 1/2 to the event of getting a head when a coin is tossed, only a Bayesian might assign probability 1/1000 to personal belief in the proposition that there was life on Mars a billion years ago, without intending to assert anything about any relative frequency.

Contents

- 1 History of Bayesian probability
- 2 Varieties of Bayesian probability
- 3 Bayesian and frequentist probability
- 4 Applications of Bayesian probability
- 5 See also
- 6 External links and references

History of Bayesian probability

"Bayesian" probability or "Bayesian" theory is named after Thomas Bayes, who proved a special case of what is called Bayes' theorem. (However, the term "Bayesian" came into use only around 1950, and in fact it is not clear that Bayes would have endorsed the very broad interpretation of probability now called "Bayesian".) Laplace independently proved a more general version of Bayes' theorem and put it to good use in solving problems in celestial mechanics, medical statistics and, by some accounts, even jurisprudence.

For instance, Laplace estimated the mass of Saturn, given orbital data that were available to him from various astronomical observations. He presented the result together with an indication of its uncertainty, stating it like this: 'It is a bet of 11000 to 1 that the error in this result is not within 1/100th of its value'. He would have won the bet, as another 150 years' accumulation of data has changed the estimate by only 0.63%.

The general outlook of Bayesian probability, promoted by Laplace and several later authors, has been that the laws of probability apply equally to propositions of all kinds. Several attempts have been made to ground this intuitive notion in formal demonstrations. One line of argument is based on betting, as expressed by Bruno de Finetti and others. Another line of argument is based on probability as an extension of ordinary logic to degrees of belief other than 0 and 1. This argument has been expounded by Harold Jeffreys, Richard T. Cox, and Edwin Jaynes. Other well-known proponents of Bayesian probability have included L. J. Savage, Frank P. Ramsey, John Maynard Keynes, and B.O. Koopman.

The frequentist interpretation of probability was preferred by some of the most influential figures in statistics during the first half of the twentieth century, including R.A. Fisher, Egon Pearson, and Jerzy Neyman. Thus for some decades the Bayesian interpretation fell out of favor. Beginning about 1950 and continuing into the present day, the work of Savage, Koopman, Abraham Wald, and others has led to broader acceptance.

Varieties of Bayesian probability

The terms *subjective probability*, *personal probability*, *epistemic probability* and *logical probability* describe some of the schools of thought which are customarily called "Bayesian". These overlap but there are differences of emphasis.

Subjective probability is supposed to measure the degree of belief an individual has in an uncertain proposition.

Some Bayesians do not accept the subjectivity. The chief exponents of this objectivist school were Edwin Thompson Jaynes and Harold Jeffreys. Perhaps the main objectivist Bayesian now living is James Berger of Duke University. Jose Bernardo and others accept some degree of subjectivity but believe a need exists for "reference priors" in many practical situations.

Advocates of **logical probability**, (such as Harold Jeffreys, Richard Threlkeld Cox, and Edwin Jaynes), hope to codify techniques that would enable any two persons having the same information relevant to the truth of an uncertain proposition to independently calculate the same probability. Except for simple cases the methods proposed are controversial. Critics challenge the suggestion that it is possible or necessary in the absence of information to start with an objective prior belief which would be acceptable to any two persons who have identical information.

Bayesian and frequentist probability

The Bayesian approach is in contrast to the concept of *frequency probability* where probability is held to be derived from observed or imagined frequency distributions or proportions of populations. The difference has many implications for the methods by which statistics is practiced when following one model or the other, and also for the way in which conclusions are expressed. When comparing two hypotheses and using some information, frequency methods would typically result in the rejection or non-rejection of the original hypothesis with a particular degree of confidence, while Bayesian methods would suggest that one hypothesis was more probable than the other or that the expected loss associated with one was less than the expected loss of the other.

Bayes' theorem is often used to update the plausibility of a given statement in light of new evidence. For example, Laplace estimated the mass of Saturn (described above) in this way. According to the frequency probability definition, however, the laws of probability are not applicable to this problem. This is because the mass of Saturn is a constant and not a random variable, therefore, it has no frequency distribution and so the laws of probability cannot be used.

Applications of Bayesian probability

Today, there are a variety of applications of personal probability that have gained wide acceptance. Some schools of thought emphasise Cox's theorem and Jaynes' principle of maximum entropy as cornerstones of the theory, while others may claim that Bayesian methods are more general and give better results in practice than frequency probability. See Bayesian inference for applications and Bayes' Theorem for the mathematics.

Bayesian inference is proposed as a model of the scientific method in that updating probabilities via Bayes' theorem is similar to the scientific method, in which one starts with an initial set of beliefs about the relative plausibility of various hypotheses, collects new information (for example by conducting an experiment), and adjusts the original set of beliefs in the light of the new information to produce a more refined set of beliefs of the plausibility of the different hypotheses. Similarly the use of Bayes factors has been put forward as justifications for Occam's Razor.

Bayesian techniques have recently been applied to filter out email spam with good success. After submitting a selection of known spam to the filter, it then uses their word occurrences to help it discriminate between spam and legitimate email.

See Bayesian inference and Bayesian filtering for more information in this regard.

See also

- uncertainty
- inference
- Doomsday argument for a controversial use of Bayesian inference

External links and references

- On-line textbook: *Information Theory, Inference, and Learning Algorithms* (<http://www.inference.phy.cam.ac.uk/mackay/itila/book.html>), by David MacKay, has many chapters on Bayesian methods, including introductory examples; compelling arguments in favour of Bayesian methods (in the style of Edwin Jaynes); state-of-the-art Monte Carlo methods, message-passing methods, and variational methods; and examples illustrating the intimate connections between Bayesian inference and data compression.
- <http://www-groups.dcs.st-andrews.ac.uk/history/Mathematicians/Ramsey.html>
- David Howie: *Interpreting Probability, Controversies and Developments in the Early Twentieth Century*, Cambridge University Press, 2002, ISBN 0521812518
- Colin Howson and Peter Urbach: *Scientific Reasoning: The Bayesian Approach*, Open Court Publishing, 2nd edition, 1993, ISBN 0812692357, focusses on the philosophical underpinnings of Bayesian and frequentist statistics. Argues for the subjective interpretation of probability.
- Jeff Miller "Earliest Known Uses of Some of the Words of Mathematics (B)" (<http://members.aol.com/jeff570/b.html>)
- Paul Graham "Bayesian spam filtering" (<http://www.paulgraham.com/better.html>)

Retrieved from "http://en.wikipedia.org/wiki/Bayesian_probability"

Categories: Probability and statistics

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(Cite as: 185 F.3d 1364)

185 F.3d 1364, 51 U.S.P.Q.2d 1700

Briefs and Other Related Documents

United States Court of Appeals,
Federal Circuit.
JUICY WHIP, INC., Plaintiff-Appellant,
v.
ORANGE BANG, INC. and Unique Beverage Dispensers, Inc., Defendants-Appellees.
No. 98-1379.
Aug. 6, 1999.

Assignee of patent for post-mix beverage dispenser brought infringement action against defendants. The United States District Court for the Central District of California, Audrey B. Collins, J., granted summary judgment of invalidity based on lack of utility, and assignee appealed. The Court of Appeals, Bryson, Circuit Judge, held that dispenser met statutory requirement of utility by embodying features of a post-mix dispenser, while imitating visual appearance of a pre-mix dispenser.

Reversed and remanded.

West Headnotes**[1] KeyCite Notes**

- ⌚ 291 Patents
- ⌚ 291II Patentability
- ⌚ 291II(C) Utility
- ⌚ 291k47 k. Capacity to Produce Result. Most Cited Cases

An invention is "useful" for purpose of patentability if it is capable of providing some identifiable benefit. 35 U.S.C.A. § 101.

**[2] KeyCite Notes**

- ⌚ 291 Patents
- ⌚ 291II Patentability
- ⌚ 291II(C) Utility
- ⌚ 291k48 k. Nature of Product or Result. Most Cited Cases

Post-mix beverage dispenser claimed in patent met statutory requirement of utility by embodying features of a post-mix dispenser, including resistance to bacterial growth, while imitating visual appearance of a pre-mix dispenser, which was allegedly more attractive to consumers, notwithstanding assertion that claimed dispenser's use of reservoir to embody fluid that only looked like dispensed beverage was deceptive. 35 U.S.C.A. § 101.

**[3] KeyCite Notes**

- ⌚ 291 Patents
- ⌚ 291II Patentability
- ⌚ 291II(C) Utility
- ⌚ 291k48 k. Nature of Product or Result. Most Cited Cases

The fact that one product can be altered to make it look like another is in itself a specific benefit sufficient to satisfy the statutory requirement of utility, for the purpose of patentability. 35 U.S.C.A. § 101.

KeyCite Notes



291 Patents

291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents

291k328 Patents Enumerated

291k328(2) k. Original Utility. Most Cited Cases

5,571,545, 5,762,968, 5,899,038. Cited.

KeyCite Notes



291 Patents

291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents

291k328 Patents Enumerated

291k328(2) k. Original Utility. Most Cited Cases

5,575,405. Valid.

***1365**

(Cite as: 185 F.3d 1364, *1365)

Ernie L. Brooks, Brooks & Kushman, P.C., Southfield, Michigan, argued for plaintiff-appellant. With him on the brief were Frank A. Angileri, William G. Abbatt, and John E. Nemazi.

Michael A. Painter, Isaacman, Kaufman & Painter, Beverly Hills, California, argued for defendants-appellees.

Before RICH, [FN1] SCHALL, and BRYSON, Circuit Judges.

FN1. Circuit Judge Rich heard oral argument in this case but died on June 9, 1999. This case was decided by the remaining judges in accordance with Federal Circuit Rule 47.11.

BRYSON, Circuit Judge.

The district court in this case held a patent invalid for lack of utility on the ground that the patented invention was designed to deceive customers by imitating another product and thereby increasing sales of a particular good. We reverse and remand.

I

Juicy Whip, Inc., is the assignee of United States Patent No. 5,575,405, which is entitled "Post-Mix Beverage Dispenser With an Associated Simulated Display of Beverage." A "post-mix" beverage dispenser stores beverage syrup concentrate and water in separate locations until the beverage is ready to be dispensed. The syrup and water are mixed together immediately before the beverage is dispensed, which is usually after the consumer requests the beverage. In contrast, in a "pre-mix" beverage dispenser, the syrup concentrate and water are pre-mixed and the beverage is stored in a display reservoir bowl until it is ready to be dispensed. The display bowl is said to stimulate impulse buying by providing the consumer with a visual beverage display. A pre-mix display bowl, however, has a limited capacity and is subject to contamination by bacteria. It therefore must be refilled and cleaned frequently. The invention claimed in the '405 patent is a post-mix beverage dispenser that is designed to look like a pre-mix beverage dispenser. The claims require the post-mix dispenser to have a transparent bowl that is filled with a fluid that simulates the appearance of the dispensed beverage and is resistant to bacterial growth. The claims also require that the dispenser create the visual impression that the bowl is the principal source of the dispensed beverage, although in fact the beverage is mixed immediately before it is dispensed, as in conventional post-mix dispensers.

Claim 1 is representative of the claims at issue. It reads as follows:

In a post-mix beverage dispenser of the type having an outlet for discharging beverage components in predetermined proportions to provide a serving of dispensed beverage, the improvement which comprises: a transparent bowl having no fluid connection with the outlet and visibly containing a quantity of fluid;

said fluid being resistant to organic growth and simulating the appearance of the dispensed beverage; said bowl being positioned relative to the outlet to create the visual impression *1366

(Cite as: 185 F.3d 1364, *1366) —

that said bowl is the reservoir and principal source of the dispensed beverage from the outlet; and said bowl and said quantity of fluid visible within said bowl cooperating to create the visual impression that multiple servings of the dispensed beverage are stored within said bowl.

Juicy Whip sued defendants Orange Bang, Inc., and Unique Beverage Dispensers, Inc., (collectively, "Orange Bang") in the United States District Court for the Central District of California, alleging that they were infringing the claims of the '405 patent. Orange Bang moved for summary judgment of invalidity, and the district court granted Orange Bang's motion on the ground that the invention lacked utility and thus was unpatentable under 35 U.S.C. § 101. The court concluded that the invention lacked utility because its purpose was to increase sales by deception, i.e., through imitation of another product. The court explained that the purpose of the invention "is to create an illusion, whereby customers believe that the fluid contained in the bowl is the actual beverage that they are receiving, when of course it is not." Although the court acknowledged Juicy Whip's argument that the invention provides an accurate representation of the dispensed beverage for the consumer's benefit while eliminating the need for retailers to clean their display bowls, the court concluded that those claimed reasons for the patent's utility "are not independent of its deceptive purpose, and are thus insufficient to raise a disputed factual issue to present to a jury." The court further held that the invention lacked utility because it "improves the prior art only to the extent that it increases the salability of beverages dispensed from post-mix dispensers"; an invention lacks utility, the court stated, if it confers no benefit to the public other than the opportunity for making a product more salable. Finally, the court ruled that the invention lacked utility because it "is merely an imitation of the pre-mix dispenser," and thus does not constitute a new and useful machine.

II

[1]  Section 101 of the Patent Act of 1952, 35 U.S.C. § 101, provides that "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof," may obtain a patent on the invention or discovery. The threshold of utility is not high: An invention is "useful" under section 101 if it is capable of providing some identifiable benefit. See *Brenner v. Manson*, 383 U.S. 519, 534, 86 S.Ct. 1033, 16 L.Ed.2d 69 (1966); *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1571 (Fed.Cir.1992) ("To violate § 101 the claimed device must be totally incapable of achieving a useful result"); *Fuller v. Berger*, 120 F. 274, 275 (7th Cir.1903) (test for utility is whether invention "is incapable of serving any beneficial end").

To be sure, since Justice Story's opinion in *Lowell v. Lewis*, 15 F. Cas. 1018 (C.C.D.Mass.1817), it has been stated that inventions that are "injurious to the well-being, good policy, or sound morals of society" are unpatentable. As examples of such inventions, Justice Story listed "a new invention to poison people, or to promote debauchery, or to facilitate private assassination." *Id.* at 1019. Courts have continued to recite Justice Story's formulation, see *Tol-O-Matic, Inc. v. Proma Produkt-Und Marketing Gesellschaft m.b.H.*, 945 F.2d 1546, 1552-53, 20 USPQ2d 1332, 1338 (Fed.Cir.1991); *In re Nelson*, 47 C.C.P.A. 1031, 280 F.2d 172, 178-79, 126 USPQ 242, 249 (CCPA 1960), but the principle that inventions are invalid if they are principally designed to serve immoral or illegal purposes has not been applied *1367

(Cite as: 185 F.3d 1364, *1367) —

broadly in recent years. For example, years ago courts invalidated patents on gambling devices on the ground that they were immoral, see e.g., *Brewer v. Lichtenstein*, 278 F. 512 (7th Cir.1922); *Schultze v. Holtz*, 82 F. 448 (N.D.Cal.1897); *National Automatic Device Co. v. Lloyd*, 40 F. 89 (N.D.Ill.1889), but that is no longer the law, see *In re Murphy*, 200 USPQ 801 (PTO Bd.App.1977).

[2]  In holding the patent in this case invalid for lack of utility, the district court relied on two Second Circuit cases dating from the early years of this century, *Rickard v. Du Bon*, 103 F. 868 (2d Cir.1900), and *Scott & Williams v. Aristo Hosiery Co.*, 7 F.2d 1003 (2d Cir.1925). In the *Rickard* case, the court held invalid a patent on a process for treating tobacco plants to make their leaves appear spotted. At the time of the invention, according to the court, cigar smokers considered cigars with spotted wrappers to be of superior quality, and the invention was designed to make unspotted tobacco leaves appear to be of the spotted--and thus more desirable-- type. The court noted that the invention did not promote the burning quality of the leaf or improve its quality in any way; "the only effect, if not the only object, of such treatment, is to spot the tobacco, and counterfeit the leaf spotted by natural causes." *Id.* at 869.

The *Aristo Hosiery* case concerned a patent claiming a seamless stocking with a structure on the back of the stocking that imitated a seamed stocking. The imitation was commercially useful because at the time of the invention many consumers regarded seams in stockings as an indication of higher quality. The court noted that the imitation seam did not "change or improve the structure or the utility of the article," and that the record in the case justified the

conclusion that true seamed stockings were superior to the seamless stockings that were the subject of the patent. See *Aristo Hosiery*, 7 F.2d at 1004. "At best," the court stated, "the seamless stocking has imitation marks for the purposes of deception, and the idea prevails that with such imitation the article is more salable." *Id.* That was not enough, the court concluded, to render the invention patentable.

KC

[3] We decline to follow *Rickard* and *Aristo Hosiery*, as we do not regard them as representing the correct view of the doctrine of utility under the Patent Act of 1952. The fact that one product can be altered to make it look like another is in itself a specific benefit sufficient to satisfy the statutory requirement of utility. It is not at all unusual for a product to be designed to appear to viewers to be something it is not. For example, cubic zirconium is designed to simulate a diamond, imitation gold leaf is designed to imitate real gold leaf, synthetic fabrics are designed to simulate expensive natural fabrics, and imitation leather is designed to look like real leather. In each case, the invention of the product or process that makes such imitation possible has "utility" within the meaning of the patent statute, and indeed there are numerous patents directed toward making one product imitate another. See, e.g., U.S. Pat. No. 5,762,968 (method for producing imitation grill marks on food without using heat); U.S. Pat. No. 5,899,038 (laminated flooring imitating wood); U.S. Pat. No. 5,571,545 (imitation hamburger). Much of the value of such products resides in the fact that they appear to be something they are not. Thus, in this case the claimed post-mix dispenser meets the statutory requirement of utility by embodying the features of a post-mix dispenser while imitating the visual appearance of a pre-mix dispenser.

The fact that customers may believe they are receiving fluid directly from the display tank does not deprive the invention of utility. Orange Bang has not argued that it is unlawful to display a representation of the beverage in the manner that *1368

(Cite as: 185 F.3d 1364, *1368) _____

fluid is displayed in the reservoir of the invention, even though the fluid is not what the customer will actually receive. Moreover, even if the use of a reservoir containing fluid that is not dispensed is considered deceptive, that is not by itself sufficient to render the invention unpatentable. The requirement of "utility" in patent law is not a directive to the Patent and Trademark Office or the courts to serve as arbiters of deceptive trade practices. Other agencies, such as the Federal Trade Commission and the Food and Drug Administration, are assigned the task of protecting consumers from fraud and deception in the sale of food products. Cf. *In re Watson*, 517 F.2d 465, 474-76, 186 USPQ 11, 19 (CCPA 1975) (stating that it is not the province of the Patent Office to determine, under section 101, whether drugs are safe). As the Supreme Court put the point more generally, "Congress never intended that the patent laws should displace the police powers of the States, meaning by that term those powers by which the health, good order, peace and general welfare of the community are promoted." *Webber v. Virginia*, 103 U.S. (13 Otto) 344, 347-48, 26 L.Ed. 565 (1880).

Of course, Congress is free to declare particular types of inventions unpatentable for a variety of reasons, including deceptiveness. Cf. 42 U.S.C. § 2181(a) (exempting from patent protection inventions useful solely in connection with special nuclear material or atomic weapons). Until such time as Congress does so, however, we find no basis in section 101 to hold that inventions can be ruled unpatentable for lack of utility simply because they have the capacity to fool some members of the public. The district court therefore erred in holding that the invention of the '405 patent lacks utility because it deceives the public through imitation in a manner that is designed to increase product sales.

REVERSED and REMANDED.

C.A.Fed. (Cal.), 1999.

Juicy Whip, Inc. v. Orange Bang, Inc.

185 F.3d 1364, 51 U.S.P.Q.2d 1700

Briefs and Other Related Documents (Back to top)

- [1998 WL 34089380](#) (Appellate Brief) Reply Brief of Plaintiff-Appellant, Juicy Whip, Inc. (Dec. 28, 1998) [Original Image of this Document \(PDF\)](#) 
- [1998 WL 34089379](#) (Appellate Brief) Corrected Brief of Defendant-Appellees, Orange Bang, Inc. and Unique Beverage Dispensers, Inc. (Dec. 11, 1998) [Original Image of this Document \(PDF\)](#) 
- [1998 WL 34089386](#) (Appellate Brief) Brief of Plaintiff-Appellant, Juicy Whip, Inc. (Oct. 08, 1998) [Original Image of this Document with Appendix \(PDF\)](#) 
- [98-1379](#) (Docket) (May. 26, 1998)

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(Cite as: 185 F.3d 1364)

185 F.3d 1364, 51 U.S.P.Q.2d 1700

Briefs and Other Related DocumentsUnited States Court of Appeals,
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ORANGE BANG, INC. and Unique Beverage Dispensers, Inc., Defendants-Appellees.

No. 98-1379.

Aug. 6, 1999.

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West Headnotes

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 KeyCite Notes

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5,575,405. Valid.

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(Cite as: 185 F.3d 1364, *1365) 

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Michael A. Painter, Isaacman, Kaufman & Painter, Beverly Hills, California, argued for defendants-appellees.

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FN1. Circuit Judge Rich heard oral argument in this case but died on June 9, 1999. This case was decided by the remaining judges in accordance with Federal Circuit Rule 47.11.

BRYSON, Circuit Judge.

The district court in this case held a patent invalid for lack of utility on the ground that the patented invention was designed to deceive customers by imitating another product and thereby increasing sales of a particular good. We reverse and remand.

I

Juicy Whip, Inc., is the assignee of United States Patent No. 5,575,405, which is entitled "Post-Mix Beverage Dispenser With an Associated Simulated Display of Beverage." A "post-mix" beverage dispenser stores beverage syrup concentrate and water in separate locations until the beverage is ready to be dispensed. The syrup and water are mixed together immediately before the beverage is dispensed, which is usually after the consumer requests the beverage. In contrast, in a "pre-mix" beverage dispenser, the syrup concentrate and water are pre-mixed and the beverage is stored in a display reservoir bowl until it is ready to be dispensed. The display bowl is said to stimulate impulse buying by providing the consumer with a visual beverage display. A pre-mix display bowl, however, has a limited capacity and is subject to contamination by bacteria. It therefore must be refilled and cleaned frequently. The invention claimed in the '405 patent is a post-mix beverage dispenser that is designed to look like a pre-mix beverage dispenser. The claims require the post-mix dispenser to have a transparent bowl that is filled with a fluid that simulates the appearance of the dispensed beverage and is resistant to bacterial growth. The claims also require that the dispenser create the visual impression that the bowl is the principal source of the dispensed beverage, although in fact the beverage is mixed immediately before it is dispensed, as in conventional post-mix dispensers.

Claim 1 is representative of the claims at issue. It reads as follows:

In a post-mix beverage dispenser of the type having an outlet for discharging beverage components in predetermined proportions to provide a serving of dispensed beverage, the improvement which comprises: a transparent bowl having no fluid connection with the outlet and visibly containing a quantity of fluid;

said fluid being resistant to organic growth and simulating the appearance of the dispensed beverage; said bowl being positioned relative to the outlet to create the visual impression *1366

(Cite as: 185 F.3d 1364, *1366) —

that said bowl is the reservoir and principal source of the dispensed beverage from the outlet; and said bowl and said quantity of fluid visible within said bowl cooperating to create the visual impression that multiple servings of the dispensed beverage are stored within said bowl.

Juicy Whip sued defendants Orange Bang, Inc., and Unique Beverage Dispensers, Inc., (collectively, "Orange Bang") in the United States District Court for the Central District of California, alleging that they were infringing the claims of the '405 patent. Orange Bang moved for summary judgment of invalidity, and the district court granted Orange Bang's motion on the ground that the invention lacked utility and thus was unpatentable under 35 U.S.C. § 101. The court concluded that the invention lacked utility because its purpose was to increase sales by deception, i.e., through imitation of another product. The court explained that the purpose of the invention "is to create an illusion, whereby customers believe that the fluid contained in the bowl is the actual beverage that they are receiving, when of course it is not." Although the court acknowledged Juicy Whip's argument that the invention provides an accurate representation of the dispensed beverage for the consumer's benefit while eliminating the need for retailers to clean their display bowls, the court concluded that those claimed reasons for the patent's utility "are not independent of its deceptive purpose, and are thus insufficient to raise a disputed factual issue to present to a jury." The court further held that the invention lacked utility because it "improves the prior art only to the extent that it increases the salability of beverages dispensed from post-mix dispensers"; an invention lacks utility, the court stated, if it confers no benefit to the public other than the opportunity for making a product more salable. Finally, the court ruled that the invention lacked utility because it "is merely an imitation of the pre-mix dispenser," and thus does not constitute a new and useful machine.

II

 [1] Section 101 of the Patent Act of 1952, 35 U.S.C. § 101, provides that "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof," may obtain a patent on the invention or discovery. The threshold of utility is not high: An invention is "useful" under section 101 if it is capable of providing some identifiable benefit. See *Brenner v. Manson*, 383 U.S. 519, 534, 86 S.Ct. 1033, 16 L.Ed.2d 69 (1966); *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1571 (Fed.Cir.1992) ("To violate § 101 the claimed device must be totally incapable of achieving a useful result"); *Fuller v. Berger*, 120 F. 274, 275 (7th Cir.1903) (test for utility is whether invention "is incapable of serving any beneficial end").

To be sure, since Justice Story's opinion in *Lowell v. Lewis*, 15 F. Cas. 1018 (C.C.D.Mass.1817), it has been stated that inventions that are "injurious to the well-being, good policy, or sound morals of society" are unpatentable. As examples of such inventions, Justice Story listed "a new invention to poison people, or to promote debauchery, or to facilitate private assassination." *Id.* at 1019. Courts have continued to recite Justice Story's formulation, see *Tol-O-Matic, Inc. v. Proma Produkt-Und Marketing Gesellschaft m.b.H.*, 945 F.2d 1546, 1552-53, 20 USPQ2d 1332, 1338 (Fed.Cir.1991); *In re Nelson*, 47 C.C.P.A. 1031, 280 F.2d 172, 178-79, 126 USPQ 242, 249 (CCPA 1960), but the principle that inventions are invalid if they are principally designed to serve immoral or illegal purposes has not been applied *1367

(Cite as: 185 F.3d 1364, *1367) —

broadly in recent years. For example, years ago courts invalidated patents on gambling devices on the ground that they were immoral, see e.g., *Brewer v. Lichtenstein*, 278 F. 512 (7th Cir.1922); *Schultze v. Holtz*, 82 F. 448 (N.D.Cal.1897); *National Automatic Device Co. v. Lloyd*, 40 F. 89 (N.D.Ill.1889), but that is no longer the law, see *In re Murphy*, 200 USPQ 801 (PTO Bd.App.1977).

 [2] In holding the patent in this case invalid for lack of utility, the district court relied on two Second Circuit cases dating from the early years of this century, *Rickard v. Du Bon*, 103 F. 868 (2d Cir.1900), and *Scott & Williams v. Aristo Hosiery Co.*, 7 F.2d 1003 (2d Cir.1925). In the *Rickard* case, the court held invalid a patent on a process for treating tobacco plants to make their leaves appear spotted. At the time of the invention, according to the court, cigar smokers considered cigars with spotted wrappers to be of superior quality, and the invention was designed to make unspotted tobacco leaves appear to be of the spotted--and thus more desirable--type. The court noted that the invention did not promote the burning quality of the leaf or improve its quality in any way; "the only effect, if not the only object, of such treatment, is to spot the tobacco, and counterfeit the leaf spotted by natural causes." *Id.* at 869.

The *Aristo Hosiery* case concerned a patent claiming a seamless stocking with a structure on the back of the stocking that imitated a seamed stocking. The imitation was commercially useful because at the time of the invention many consumers regarded seams in stockings as an indication of higher quality. The court noted that the imitation seam did not "change or improve the structure or the utility of the article," and that the record in the case justified the

conclusion that true seamed stockings were superior to the seamless stockings that were the subject of the patent. See *Aristo Hosiery*, 7 F.2d at 1004. "At best," the court stated, "the seamless stocking has imitation marks for the purposes of deception, and the idea prevails that with such imitation the article is more salable." *Id.* That was not enough, the court concluded, to render the invention patentable.

KC

[3] We decline to follow *Rickard* and *Aristo Hosiery*, as we do not regard them as representing the correct view of the doctrine of utility under the Patent Act of 1952. The fact that one product can be altered to make it look like another is in itself a specific benefit sufficient to satisfy the statutory requirement of utility.

It is not at all unusual for a product to be designed to appear to viewers to be something it is not. For example, cubic zirconium is designed to simulate a diamond, imitation gold leaf is designed to imitate real gold leaf, synthetic fabrics are designed to simulate expensive natural fabrics, and imitation leather is designed to look like real leather. In each case, the invention of the product or process that makes such imitation possible has "utility" within the meaning of the patent statute, and indeed there are numerous patents directed toward making one product imitate another. See, e.g., U.S. Pat. No. 5,762,968 (method for producing imitation grill marks on food without using heat); U.S. Pat. No. 5,899,038 (laminated flooring imitating wood); U.S. Pat. No. 5,571,545 (imitation hamburger). Much of the value of such products resides in the fact that they appear to be something they are not. Thus, in this case the claimed post-mix dispenser meets the statutory requirement of utility by embodying the features of a post-mix dispenser while imitating the visual appearance of a pre-mix dispenser.

The fact that customers may believe they are receiving fluid directly from the display tank does not deprive the invention of utility. Orange Bang has not argued that it is unlawful to display a representation of the beverage in the manner that *1368

(Cite as: 185 F.3d 1364, *1368)

fluid is displayed in the reservoir of the invention, even though the fluid is not what the customer will actually receive. Moreover, even if the use of a reservoir containing fluid that is not dispensed is considered deceptive, that is not by itself sufficient to render the invention unpatentable. The requirement of "utility" in patent law is not a directive to the Patent and Trademark Office or the courts to serve as arbiters of deceptive trade practices. Other agencies, such as the Federal Trade Commission and the Food and Drug Administration, are assigned the task of protecting consumers from fraud and deception in the sale of food products. Cf. *In re Watson*, 517 F.2d 465, 474-76, 186 USPO 11, 19 (CCPA 1975) (stating that it is not the province of the Patent Office to determine, under section 101, whether drugs are safe). As the Supreme Court put the point more generally, "Congress never intended that the patent laws should displace the police powers of the States, meaning by that term those powers by which the health, good order, peace and general welfare of the community are promoted." *Webber v. Virginia*, 103 U.S. (13 Otto) 344, 347-48, 26 L.Ed. 565 (1880).

Of course, Congress is free to declare particular types of inventions unpatentable for a variety of reasons, including deceptiveness. Cf. 42 U.S.C. § 2181(a) (exempting from patent protection inventions useful solely in connection with special nuclear material or atomic weapons). Until such time as Congress does so, however, we find no basis in section 101 to hold that inventions can be ruled unpatentable for lack of utility simply because they have the capacity to fool some members of the public. The district court therefore erred in holding that the invention of the '405 patent lacks utility because it deceives the public through imitation in a manner that is designed to increase product sales.

REVERSED and REMANDED.

C.A.Fed. (Cal.), 1999.

Juicy Whip, Inc. v. Orange Bang, Inc.

185 F.3d 1364, 51 U.S.P.Q.2d 1700

Briefs and Other Related Documents [\(Back to top\)](#)

- [1998 WL 34089380](#) (Appellate Brief) Reply Brief of Plaintiff-Appellant, Juicy Whip, Inc. (Dec. 28, 1998) [Original Image of this Document \(PDF\)](#)
- [1998 WL 34089379](#) (Appellate Brief) Corrected Brief of Defendant-Appellees, Orange Bang, Inc. and Unique Beverage Dispensers, Inc. (Dec. 11, 1998) [Original Image of this Document \(PDF\)](#)
- [1998 WL 34089386](#) (Appellate Brief) Brief of Plaintiff-Appellant, Juicy Whip, Inc. (Oct. 08, 1998) [Original Image of this Document with Appendix \(PDF\)](#)
- [98-1379](#) (Docket) (May. 26, 1998)

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(Cite as: 185 F.3d 1364)

185 F.3d 1364, 51 U.S.P.Q.2d 1700

Briefs and Other Related Documents

United States Court of Appeals,
 Federal Circuit.
 JUICY WHIP, INC., Plaintiff-Appellant,
 v.

ORANGE BANG, INC. and Unique Beverage Dispensers, Inc., Defendants-Appellees.
 No. 98-1379.
 Aug. 6, 1999.

Assignee of patent for post-mix beverage dispenser brought infringement action against defendants. The United States District Court for the Central District of California, Audrey B. Collins, J., granted summary judgment of invalidity based on lack of utility, and assignee appealed. The Court of Appeals, Bryson, Circuit Judge, held that dispenser met statutory requirement of utility by embodying features of a post-mix dispenser, while imitating visual appearance of a pre-mix dispenser.

Reversed and remanded.

West Headnotes

[1] KeyCite Notes

- 291 Patents
- 291II Patentability
- 291II(C) Utility
- 291k47 k. Capacity to Produce Result. Most Cited Cases

An invention is "useful" for purpose of patentability if it is capable of providing some identifiable benefit. 35 U.S.C.A. § 101.

[2] KeyCite Notes

- 291 Patents
- 291II Patentability
- 291II(C) Utility
- 291k48 k. Nature of Product or Result. Most Cited Cases

Post-mix beverage dispenser claimed in patent met statutory requirement of utility by embodying features of a post-mix dispenser, including resistance to bacterial growth, while imitating visual appearance of a pre-mix dispenser, which was allegedly more attractive to consumers, notwithstanding assertion that claimed dispenser's use of reservoir to embody fluid that only looked like dispensed beverage was deceptive. 35 U.S.C.A. § 101.

[3] KeyCite Notes

- 291 Patents
- 291II Patentability
- 291II(C) Utility
- 291k48 k. Nature of Product or Result. Most Cited Cases

The fact that one product can be altered to make it look like another is in itself a specific benefit sufficient to satisfy the statutory requirement of utility, for the purpose of patentability. 35 U.S.C.A. § 101.



KeyCite Notes

291 Patents

291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents

291k328 Patents Enumerated

291k328(2) k. Original Utility. Most Cited Cases

5,571,545, 5,762,968, 5,899,038. Cited.



KeyCite Notes

291 Patents

291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents

291k328 Patents Enumerated

291k328(2) k. Original Utility. Most Cited Cases

5,575,405. Valid.

***1365**

(Cite as: 185 F.3d 1364, *1365)

Ernie L. Brooks, Brooks & Kushman, P.C., Southfield, Michigan, argued for plaintiff-appellant. With him on the brief were Frank A. Angileri, William G. Abbatt, and John E. Nemazi.

Michael A. Painter, Isaacman, Kaufman & Painter, Beverly Hills, California, argued for defendants-appellees.

Before RICH, [FN1] SCHALL, and BRYSON, Circuit Judges.

FN1. Circuit Judge Rich heard oral argument in this case but died on June 9, 1999. This case was decided by the remaining judges in accordance with Federal Circuit Rule 47.11.

BRYSON, Circuit Judge.

The district court in this case held a patent invalid for lack of utility on the ground that the patented invention was designed to deceive customers by imitating another product and thereby increasing sales of a particular good. We reverse and remand.

I

Juicy Whip, Inc., is the assignee of United States Patent No. 5,575,405, which is entitled "Post-Mix Beverage Dispenser With an Associated Simulated Display of Beverage." A "post-mix" beverage dispenser stores beverage syrup concentrate and water in separate locations until the beverage is ready to be dispensed. The syrup and water are mixed together immediately before the beverage is dispensed, which is usually after the consumer requests the beverage. In contrast, in a "pre-mix" beverage dispenser, the syrup concentrate and water are pre-mixed and the beverage is stored in a display reservoir bowl until it is ready to be dispensed. The display bowl is said to stimulate impulse buying by providing the consumer with a visual beverage display. A pre-mix display bowl, however, has a limited capacity and is subject to contamination by bacteria. It therefore must be refilled and cleaned frequently. The invention claimed in the '405 patent is a post-mix beverage dispenser that is designed to look like a pre-mix beverage dispenser. The claims require the post-mix dispenser to have a transparent bowl that is filled with a fluid that simulates the appearance of the dispensed beverage and is resistant to bacterial growth. The claims also require that the dispenser create the visual impression that the bowl is the principal source of the dispensed beverage, although in fact the beverage is mixed immediately before it is dispensed, as in conventional post-mix dispensers.

Claim 1 is representative of the claims at issue. It reads as follows:

In a post-mix beverage dispenser of the type having an outlet for discharging beverage components in predetermined proportions to provide a serving of dispensed beverage, the improvement which comprises: a transparent bowl having no fluid connection with the outlet and visibly containing a quantity of fluid;

said fluid being resistant to organic growth and simulating the appearance of the dispensed beverage; said bowl being positioned relative to the outlet to create the visual impression *1366

(Cite as: 185 F.3d 1364, *1366)

that said bowl is the reservoir and principal source of the dispensed beverage from the outlet; and said bowl and said quantity of fluid visible within said bowl cooperating to create the visual impression that multiple servings of the dispensed beverage are stored within said bowl.

Juicy Whip sued defendants Orange Bang, Inc., and Unique Beverage Dispensers, Inc., (collectively, "Orange Bang") in the United States District Court for the Central District of California, alleging that they were infringing the claims of the '405 patent. Orange Bang moved for summary judgment of invalidity, and the district court granted Orange Bang's motion on the ground that the invention lacked utility and thus was unpatentable under 35 U.S.C. § 101. The court concluded that the invention lacked utility because its purpose was to increase sales by deception, i.e., through imitation of another product. The court explained that the purpose of the invention "is to create an illusion, whereby customers believe that the fluid contained in the bowl is the actual beverage that they are receiving, when of course it is not." Although the court acknowledged Juicy Whip's argument that the invention provides an accurate representation of the dispensed beverage for the consumer's benefit while eliminating the need for retailers to clean their display bowls, the court concluded that those claimed reasons for the patent's utility "are not independent of its deceptive purpose, and are thus insufficient to raise a disputed factual issue to present to a jury." The court further held that the invention lacked utility because it "improves the prior art only to the extent that it increases the salability of beverages dispensed from post-mix dispensers"; an invention lacks utility, the court stated, if it confers no benefit to the public other than the opportunity for making a product more salable. Finally, the court ruled that the invention lacked utility because it "is merely an imitation of the pre-mix dispenser," and thus does not constitute a new and useful machine.

II

KC

[1] Section 101 of the Patent Act of 1952, 35 U.S.C. § 101, provides that "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof," may obtain a patent on the invention or discovery. The threshold of utility is not high: An invention is "useful" under section 101 if it is capable of providing some identifiable benefit. See *Brenner v. Manson*, 383 U.S. 519, 534, 86 S.Ct. 1033, 16 L.Ed.2d 69 (1966); *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1571 (Fed.Cir.1992) ("To violate § 101 the claimed device must be totally incapable of achieving a useful result"); *Fuller v. Berger*, 120 F. 274, 275 (7th Cir.1903) (test for utility is whether invention "is incapable of serving any beneficial end").

To be sure, since Justice Story's opinion in *Lowell v. Lewis*, 15 F. Cas. 1018 (C.C.D.Mass.1817), it has been stated that inventions that are "injurious to the well-being, good policy, or sound morals of society" are unpatentable. As examples of such inventions, Justice Story listed "a new invention to poison people, or to promote debauchery, or to facilitate private assassination." *Id. at 1019*. Courts have continued to recite Justice Story's formulation, see *Tol-O-Matic, Inc. v. Proma Produkt-Und Marketing Gesellschaft m.b.H.*, 945 F.2d 1546, 1552-53, 20 USPQ2d 1332, 1338 (Fed.Cir.1991); *In re Nelson*, 47 C.C.P.A. 1031, 280 F.2d 172, 178-79, 126 USPQ 242, 249 (CCPA 1960), but the principle that inventions are invalid if they are principally designed to serve immoral or illegal purposes has not been applied *1367

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broadly in recent years. For example, years ago courts invalidated patents on gambling devices on the ground that they were immoral, see e.g., *Brewer v. Lichtenstein*, 278 F. 512 (7th Cir.1922); *Schultze v. Holtz*, 82 F. 448 (N.D.Cal.1897); *National Automatic Device Co. v. Lloyd*, 40 F. 89 (N.D.Ill.1889), but that is no longer the law, see *In re Murphy*, 200 USPQ 801 (PTO Bd.App.1977).

KC

[2] In holding the patent in this case invalid for lack of utility, the district court relied on two Second Circuit cases dating from the early years of this century, *Rickard v. Du Bon*, 103 F. 868 (2d Cir.1900), and *Scott & Williams v. Aristo Hosiery Co.*, 7 F.2d 1003 (2d Cir.1925). In the *Rickard* case, the court held invalid a patent on a process for treating tobacco plants to make their leaves appear spotted. At the time of the invention, according to the court, cigar smokers considered cigars with spotted wrappers to be of superior quality, and the invention was designed to make unspotted tobacco leaves appear to be of the spotted--and thus more desirable--type. The court noted that the invention did not promote the burning quality of the leaf or improve its quality in any way; "the only effect, if not the only object, of such treatment, is to spot the tobacco, and counterfeit the leaf spotted by natural causes." *Id. at 869*.

The *Aristo Hosiery* case concerned a patent claiming a seamless stocking with a structure on the back of the stocking that imitated a seamed stocking. The imitation was commercially useful because at the time of the invention many consumers regarded seams in stockings as an indication of higher quality. The court noted that the imitation seam did not "change or improve the structure or the utility of the article," and that the record in the case justified the

conclusion that true seamed stockings were superior to the seamless stockings that were the subject of the patent. See *Aristo Hosiery*, 7 F.2d at 1004. "At best," the court stated, "the seamless stocking has imitation marks for the purposes of deception, and the idea prevails that with such imitation the article is more salable." *Id.* That was not enough, the court concluded, to render the invention patentable.

[KC]

[3] We decline to follow *Rickard* and *Aristo Hosiery*, as we do not regard them as representing the correct view of the doctrine of utility under the Patent Act of 1952. The fact that one product can be altered to make it look like another is in itself a specific benefit sufficient to satisfy the statutory requirement of utility. It is not at all unusual for a product to be designed to appear to viewers to be something it is not. For example, cubic zirconium is designed to simulate a diamond, imitation gold leaf is designed to imitate real gold leaf, synthetic fabrics are designed to simulate expensive natural fabrics, and imitation leather is designed to look like real leather. In each case, the invention of the product or process that makes such imitation possible has "utility" within the meaning of the patent statute, and indeed there are numerous patents directed toward making one product imitate another. See, e.g., U.S. Pat. No. 5,762,968 (method for producing imitation grill marks on food without using heat); U.S. Pat. No. 5,899,038 (laminated flooring imitating wood); U.S. Pat. No. 5,571,545 (imitation hamburger). Much of the value of such products resides in the fact that they appear to be something they are not. Thus, in this case the claimed post-mix dispenser meets the statutory requirement of utility by embodying the features of a post-mix dispenser while imitating the visual appearance of a pre-mix dispenser.

The fact that customers may believe they are receiving fluid directly from the display tank does not deprive the invention of utility. Orange Bang has not argued that it is unlawful to display a representation of the beverage in the manner that *1368

(Cite as: 185 F.3d 1364, *1368)

fluid is displayed in the reservoir of the invention, even though the fluid is not what the customer will actually receive. Moreover, even if the use of a reservoir containing fluid that is not dispensed is considered deceptive, that is not by itself sufficient to render the invention unpatentable. The requirement of "utility" in patent law is not a directive to the Patent and Trademark Office or the courts to serve as arbiters of deceptive trade practices. Other agencies, such as the Federal Trade Commission and the Food and Drug Administration, are assigned the task of protecting consumers from fraud and deception in the sale of food products. Cf. *In re Watson*, 517 F.2d 465, 474-76, 186 USPQ 11, 19 (CCPA 1975) (stating that it is not the province of the Patent Office to determine, under section 101, whether drugs are safe). As the Supreme Court put the point more generally, "Congress never intended that the patent laws should displace the police powers of the States, meaning by that term those powers by which the health, good order, peace and general welfare of the community are promoted." *Webber v. Virginia*, 103 U.S. (13 Otto) 344, 347-48, 26 L.Ed. 565 (1880).

Of course, Congress is free to declare particular types of inventions unpatentable for a variety of reasons, including deceptiveness. Cf. 42 U.S.C. § 2181(a) (exempting from patent protection inventions useful solely in connection with special nuclear material or atomic weapons). Until such time as Congress does so, however, we find no basis in section 101 to hold that inventions can be ruled unpatentable for lack of utility simply because they have the capacity to fool some members of the public. The district court therefore erred in holding that the invention of the '405 patent lacks utility because it deceives the public through imitation in a manner that is designed to increase product sales.

REVERSED and REMANDED.

C.A.Fed. (Cal.), 1999.

Juicy Whip, Inc. v. Orange Bang, Inc.

185 F.3d 1364, 51 U.S.P.Q.2d 1700

Briefs and Other Related Documents [\(Back to top\)](#)

- [1998 WL 34089380](#) (Appellate Brief) Reply Brief of Plaintiff-Appellant, Juicy Whip, Inc. (Dec. 28, 1998) [Original Image of this Document \(PDF\)](#)
- [1998 WL 34089379](#) (Appellate Brief) Corrected Brief of Defendant-Appellees, Orange Bang, Inc. and Unique Beverage Dispensers, Inc. (Dec. 11, 1998) [Original Image of this Document \(PDF\)](#)
- [1998 WL 34089386](#) (Appellate Brief) Brief of Plaintiff-Appellant, Juicy Whip, Inc. (Oct. 08, 1998) [Original Image of this Document with Appendix \(PDF\)](#)
- [98-1379](#) (Docket) (May. 26, 1998)

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Briefs and Other Related Documents

United States Court of Appeals,
Federal Circuit.
STATE STREET BANK & TRUST CO., Plaintiff-Appellee,
v.
SIGNATURE FINANCIAL GROUP, INC. Defendant-Appellant.
No. 96-1327.
July 23, 1998.

Bank brought action against assignee of patent for computerized accounting system used to manage mutual fund investment structure, seeking declaratory judgment that patent was invalid and unenforceable. The United States District Court for the District of Massachusetts, Patti B. Saris, J., 927 F.Supp. 502, granted summary judgment for bank, and assignee appealed. The Court of Appeals, Rich, Circuit Judge, held that: (1) patent was directed to machine, not process; (2) invention was not unpatentable under mathematical algorithm exception to patentability; and (3) there is no "business method" exception to patentability.

Reversed and remanded.

West Headnotes

[1] KeyCite Notes

- ☞ 170B Federal Courts
- ☞ 170BVIII Courts of Appeals
- ☞ 170BVIII(K) Scope, Standards, and Extent
- ☞ 170BVIII(K)1 In General
- ☞ 170Bk763 Extent of Review Dependent on Nature of Decision Appealed from
- ☞ 170Bk766 k. Summary Judgment. Most Cited Cases

On appeal, Court of Appeals is not bound to give deference to the district court's grant of summary judgment, but must make an independent determination that the standards for summary judgment have been met.

[2] KeyCite Notes

- ☞ 291 Patents
- ☞ 291XII Infringement
- ☞ 291XII(C) Suits in Equity
- ☞ 291k324 Appeal
- ☞ 291k324.5 k. Scope and Extent of Review in General. Most Cited Cases

Court of Appeals reviews patent claim construction *de novo* including any allegedly fact-based questions relating to claim construction.

[3] KeyCite Notes

- ☞ 291 Patents
- ☞ 291XII Infringement
- ☞ 291XII(C) Suits in Equity

291k324 Appeal

291k324.5 k. Scope and Extent of Review in General. Most Cited Cases

Court of Appeals reviews statutory construction de novo.



[4] KeyCite Notes

291 Patents

291IV Applications and Proceedings Thereon

291k101 Claims

291k101(8) k. Functions, Advantages or Results of Invention. Most Cited Cases

"Machine" claims having means-plus-function clauses may only be reasonably viewed as process claims if there is no supporting structure in the written description that corresponds to the claimed "means" elements.



[5] KeyCite Notes

291 Patents

291IV Applications and Proceedings Thereon

291k101 Claims

291k101(11) k. Process or Method Claims. Most Cited Cases

Patent claiming data processing system for managing a financial services configuration of a portfolio established as a partnership, which machine was made up of, at the very least, specific structures disclosed in written description and corresponding to means-plus-function elements recited in claim, was directed to machine, not process. 35 U.S.C.A. § 101.



[6] KeyCite Notes

291 Patents

291I Subjects of Patents

291k3 k. Constitutional and Statutory Provisions. Most Cited Cases

It is improper to read limitations into statute generally setting forth patentable subject matter where the legislative history indicates that Congress clearly did not intend such limitations. 35 U.S.C.A. § 101.



[7] KeyCite Notes

291 Patents

291I Subjects of Patents

291k4 Arts

291k6 k. Principles or Laws of Nature. Most Cited Cases

Unpatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting disembodied concepts or truths that are not "useful"; to be patentable an algorithm must be applied in a "useful" way. 35 U.S.C.A. § 101.



[8] KeyCite Notes

291 Patents

291I Subjects of Patents

291k4 Arts

291k6 k. Principles or Laws of Nature. Most Cited Cases

Transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, for purpose of managing mutual fund investment structure, was practical application of a mathematical algorithm, formula, or calculation, because it produced useful, concrete and tangible result, and claimed machine thus was not unpatentable under mathematical algorithm exception to patentability. 35 U.S.C.A. § 101.



[9] KeyCite Notes

291 Patents

291I Subjects of Patents

291k4 Arts

291k6 k. Principles or Laws of Nature. Most Cited Cases

Dispositive inquiry in determining patentability of invention notwithstanding its inclusion of mathematical algorithm is whether the claim as a whole is directed to statutory subject matter; it is irrelevant that a claim may contain, as part of the whole, subject matter which would not be patentable by itself, and claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula, computer program or digital computer. 35 U.S.C.A. § 101.



[10] KeyCite Notes

291 Patents

291IV Applications and Proceedings Thereon

291k101 Claims

291k101(1) k. In General. Most Cited Cases

The question of whether a patent claim encompasses statutory subject matter should not focus on which of the four categories of subject matter a claim is directed to, namely, process, machine, manufacture, or composition of matter, but rather on the essential characteristics of the subject matter, in particular, its practical utility. 35 U.S.C.A. § 101.



[11] KeyCite Notes

291 Patents

291I Subjects of Patents

291k4 Arts

291k7.14 k. Particular Processes or Methods as Constituting Invention. Most Cited Cases

Business methods are subject to same legal requirements for patentability as applied to any other process or method, and thus there is no "business method" exception to patentability. 35 U.S.C.A. § 101.



KeyCite Notes

291 Patents

291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents

291k328 Patents Enumerated

291k328(2) k. Original Utility. Most Cited Cases

5,193,056. Cited.

***1369**

(Cite as: 149 F.3d 1368, *1369)

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Before RICH, PLAGER, and BRYSON, Circuit Judges.

RICH, Circuit Judge.

Signature Financial Group, Inc. (Signature) appeals from the decision of the United States District Court for the District of Massachusetts granting a motion for summary judgment in favor of State Street Bank & Trust Co. (State Street), finding U.S. Patent No. 5,193,056 (the '056 patent) invalid on the ground that the claimed subject matter is not encompassed by 35 U.S.C. § 101 (1994). See State Street Bank & Trust Co. v. Signature Financial Group, Inc., 927 F.Supp. 502, 38 USPQ2d 1530 (D.Mass.1996). We reverse and remand because we conclude that the patent claims are directed to statutory subject matter.

BACKGROUND

Signature is the assignee of the '056 patent which is entitled "Data Processing System for Hub and Spoke Financial Services Configuration." The '056 patent issued to Signature on 9 March 1993, naming R. Todd Boes as the inventor. The '056 patent is generally directed to a data processing system (the system) for implementing an investment structure which was developed for use in Signature's business as an administrator and accounting agent for mutual funds. In essence, the system, identified by the proprietary name Hub and Spoke®, facilitates a structure whereby mutual funds (Spokes) pool their assets in an investment portfolio (Hub) organized as a partnership. This investment configuration provides the administrator of a mutual fund with the advantageous combination of economies of scale in administering investments coupled with the tax advantages of a partnership.

State Street and Signature are both in the business of acting as custodians and accounting agents for multi-tiered partnership fund financial services. State Street negotiated with Signature for a license to use its patented data processing system described and claimed in the '056 patent. When negotiations broke down, State Street brought a declaratory judgment action asserting invalidity, unenforceability, and noninfringement in Massachusetts district court, and then filed a motion for partial summary judgment of patent invalidity for failure to claim statutory subject matter under § 101. The motion was granted and this appeal followed.

DISCUSSION

[1]  [2]  [3]  On appeal, we are not bound to give deference to the district court's grant of summary judgment, but must make an independent determination that the standards for summary judgment have been met. Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1560, 19 USPQ2d 1111, 1114 (Fed.Cir.1991). Summary judgment is properly granted where there are no genuine issues of material fact and the moving party is entitled to judgment as a matter of law. Fed.R.Civ.P. 56(c). The substantive issue at hand, whether the '056 patent is invalid for failure to claim statutory subject matter under § 101, is a matter of both claim construction and statutory construction. "[W]e review claim construction *de novo* including any allegedly fact-based questions relating to claim construction." Cybor Corp. v. FAS Techs., 138 F.3d 1448, 1451, 46 USPQ2d 1169, 1174 (Fed.Cir.1998) (*in banc*). We also review statutory construction *de novo*. See Romero v. United States, 38 F.3d 1204, 1207 (Fed.Cir.1994). We hold that declaratory judgment plaintiff State Street was not entitled to the grant of summary judgment of invalidity of the '056 patent under § 101 as a matter of law, because the patent claims are directed to statutory subject matter. The following facts pertinent to the statutory subject matter issue are either undisputed or represent the version alleged by the nonmovant. See *1371

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Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986). The patented invention relates generally to a system that allows an administrator to monitor and record the financial information flow and make all calculations necessary for maintaining a partner fund financial services configuration. As previously mentioned, a partner fund financial services configuration essentially allows several mutual funds, or "Spokes," to

pool their investment funds into a single portfolio, or "Hub," allowing for consolidation of, *inter alia*, the costs of administering the fund combined with the tax advantages of a partnership. In particular, this system provides means for a daily allocation of assets for two or more Spokes that are invested in the same Hub. The system determines the percentage share that each Spoke maintains in the Hub, while taking into consideration daily changes both in the value of the Hub's investment securities and in the concomitant amount of each Spoke's assets. In determining daily changes, the system also allows for the allocation among the Spokes of the Hub's daily income, expenses, and net realized and unrealized gain or loss, calculating each day's total investments based on the concept of a book capital account. This enables the determination of a true asset value of each Spoke and accurate calculation of allocation ratios between or among the Spokes. The system additionally tracks all the relevant data determined on a daily basis for the Hub and each Spoke, so that aggregate year end income, expenses, and capital gain or loss can be determined for accounting and for tax purposes for the Hub and, as a result, for each publicly traded Spoke.

It is essential that these calculations are quickly and accurately performed. In large part this is required because each Spoke sells shares to the public and the price of those shares is substantially based on the Spoke's percentage interest in the portfolio. In some instances, a mutual fund administrator is required to calculate the value of the shares to the nearest penny within as little as an hour and a half after the market closes. Given the complexity of the calculations, a computer or equivalent device is a virtual necessity to perform the task.

The 056 patent application was filed 11 March 1991. It initially contained six "machine" claims, which incorporated means-plus-function clauses, and six method claims. According to Signature, during prosecution the examiner contemplated a § 101 rejection for failure to claim statutory subject matter. However, upon cancellation of the six method claims, the examiner issued a notice of allowance for the remaining present six claims on appeal. Only claim 1 is an independent claim.

KC

[4] The district court began its analysis by construing the claims to be directed to a process, with each "means" clause merely representing a step in that process. However, "machine" claims having "means" clauses may only be reasonably viewed as process claims if there is no supporting structure in the written description that corresponds to the claimed "means" elements. See In re Alappat, 33 F.3d 1526, 1540-41, 31 USPQ2d 1545, 1554 (Fed.Cir.1994) (*in banc*). This is not the case now before us.

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[5] When independent claim 1 is properly construed in accordance with § 112, ¶ 6, it is directed to a machine, as demonstrated below, where representative claim 1 is set forth, the subject matter in brackets stating the structure the written description discloses as corresponding to the respective "means" recited in the claims.

1. A data processing system for managing a financial services configuration of a portfolio established as a partnership, each partner being one of a plurality of funds, comprising:

- (a) computer processor means [a personal computer including a CPU] for processing data;
- (b) storage means [a data disk] for storing data on a storage medium;
- (c) first means [an arithmetic logic circuit configured to prepare the data disk to magnetically store selected data] for initializing the storage medium;
- (d) second means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases or decreases based on specific input, allocate the results on a percentage basis, and store the output in a *1372

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separate file] for processing data regarding assets in the portfolio and each of the funds from a previous day and data regarding increases or decreases in each of the funds, [sic, funds'] assets and for allocating the percentage share that each fund holds in the portfolio;

- (e) third means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file] for processing data regarding daily incremental income, expenses, and net realized gain or loss for the portfolio and for allocating such data among each fund;
- (f) fourth means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file] for processing data regarding daily net unrealized gain or loss for the portfolio and for allocating such data among each fund; and
- (g) fifth means [an arithmetic logic circuit configured to retrieve information from specific files, calculate that information on an aggregate basis and store the output in a separate file] for processing data regarding aggregate year-end income, expenses, and capital gain or loss for the portfolio and each of the funds.

Each claim component, recited as a "means" plus its function, is to be read, of course, pursuant to § 112, ¶ 6, as inclusive of the "equivalents" of the structures disclosed in the written description portion of the specification. Thus, claim 1, properly construed, claims a machine, namely, a data processing system for managing a financial services configuration of a portfolio established as a partnership, which machine is made up of, at the very least, the specific

structures disclosed in the written description and corresponding to the means-plus-function elements (a)-(g) recited in the claim. A "machine" is proper statutory subject matter under § 101. We note that, for the purposes of a § 101 analysis, it is of little relevance whether claim 1 is directed to a "machine" or a "process," as long as it falls within at least one of the four enumerated categories of patentable subject matter, "machine" and "process" being such categories.

This does not end our analysis, however, because the court concluded that the claimed subject matter fell into one of two alternative judicially-created exceptions to statutory subject matter. [FN1] The court refers to the first exception as the "mathematical algorithm" exception and the second exception as the "business method" exception. Section 101 reads:

FN1. Indeed, although we do not make this determination here, the judicially created exceptions, i.e., abstract ideas, laws of nature, etc., should be applicable to all categories of statutory subject matter, as our own precedent suggests. See *Alappat*, 33 F.3d at 1542, 31 USPQ2d at 1556; see also *In re Johnston*, 502 F.2d 765, 183 USPQ 172 (CCPA 1974) (Rich, J., dissenting).

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The plain and unambiguous meaning of § 101 is that any invention falling within one of the four stated categories of statutory subject matter may be patented, provided it meets the other requirements for patentability set forth in Title 35, i.e., those found in §§ 102, 103, and 112, ¶ 2. [FN2]

FN2. As explained in *In re Bergy*, 596 F.2d 952, 960, 201 USPQ 352, 360 (CCPA 1979) (emphases and footnote omitted):

The first door which must be opened on the difficult path to patentability is § 101 The person approaching that door is an inventor, whether his invention is patentable or not Being an inventor or having an invention, however, is no guarantee of opening even the first door. What kind of an invention or discovery is it? In dealing with the question of kind, as distinguished from the qualitative conditions which make the invention patentable, § 101 is broad and general; its language is: "any * * * process, machine, manufacture, or composition of matter, or any * * * improvement thereof." Section 100(b) further expands "process" to include "art or method, and * * * a new use of a known process, machine, manufacture, composition of matter, or material." If the invention, as the inventor defines it in his claims (pursuant to § 112, second paragraph), falls into any one of the named categories, he is allowed to pass through to the second door, which is § 102; "novelty and loss of right to patent" is the sign on it. Notwithstanding the words "new and useful" in § 101, the invention is not examined under that statute for novelty because that is not the statutory scheme of things or the long-

established administrative practice.

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[61] KC The repetitive use of the expansive term "any" in § 101 shows Congress's intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in § 101. Indeed, the Supreme Court has acknowledged that Congress intended § 101 to extend to "anything under the sun that is made by man." *Diamond v. Chakrabarty*, 447 U.S. 303, 309, 100 S.Ct. 2204, 65 L.Ed.2d 144 (1980); see also *Diamond v. Diehr*, 450 U.S. 175, 182, 101 S.Ct. 1048, 67 L.Ed.2d 155 (1981). [FN3] Thus, it is improper to read limitations into § 101 on the subject matter that may be patented where the legislative history indicates that Congress clearly did not intend such limitations. See *Chakrabarty*, 447 U.S. at 308, 100 S.Ct. 2204 ("We have also cautioned that courts 'should not read into the patent laws limitations and conditions which the legislature has not expressed.' " (citations omitted)).

FN3. The Committee Reports accompanying the 1952 Act inform us that Congress intended statutory

subject matter to "include anything under the sun that is made by man." S.Rep. No. 82-1979 at 5 (1952); H.R.Rep. No. 82-1923 at 6 (1952).

The "Mathematical Algorithm" Exception

The Supreme Court has identified three categories of subject matter that are unpatentable, namely "laws of nature, natural phenomena, and abstract ideas." Diehr, 450 U.S. at 185, 101 S.Ct. 1048. Of particular relevance to this case, the Court has held that mathematical algorithms are not patentable subject matter to the extent that they are merely abstract ideas. See Diehr, 450 U.S. 175, 101 S.Ct. 1048, *passim*; Parker v. Flook, 437 U.S. 584, 98 S.Ct. 2522, 57 L.Ed.2d 451 (1978); Gottschalk v. Benson, 409 U.S. 63, 93 S.Ct. 253, 34 L.Ed.2d 273 (1972). In Diehr, the Court explained that certain types of mathematical subject matter, standing alone, represent nothing more than abstract ideas until reduced to some type of practical application, i.e., "a useful, concrete and tangible result." Alappat, 33 F.3d at 1544, 31 USPQ2d at 1557. [FN4]

[FN4] This has come to be known as the mathematical algorithm exception. This designation has led to some confusion, especially given the Freeman-Walter-Abele analysis. By keeping in mind that the mathematical algorithm is unpatentable only to the extent that it represents an abstract idea, this confusion may be ameliorated.

[7]  Unpatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting disembodied concepts or truths that are not "useful." From a practical standpoint, this means that to be patentable an algorithm must be applied in a "useful" way. In Alappat, we held that data, transformed by a machine through a series of mathematical calculations to produce a smooth waveform display on a rasterizer monitor, constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it produced "a useful, concrete and tangible result"--the smooth waveform. Similarly, in Arrhythmia Research Technology Inc. v. Corazonix Corp., 958 F.2d 1053, 22 USPQ2d 1033 (Fed.Cir.1992), we held that the transformation of electrocardiograph signals from a patient's heartbeat by a machine through a series of mathematical calculations constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it corresponded to a useful, concrete or tangible thing--the condition of a patient's heart.

[8]  Today, we hold that the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces "a useful, concrete and tangible result"--a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.

The district court erred by applying the Freeman-Walter-Abele test to determine whether the claimed subject matter was an unpatentable abstract idea. The Freeman-Walter-Abele test was designed by the Court *1374

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of Customs and Patent Appeals, and subsequently adopted by this court, to extract and identify unpatentable mathematical algorithms in the aftermath of Benson and Flook. See In re Freeman, 573 F.2d 1237, 197 USPQ 464 (CCPA 1978) as modified by In re Walter, 618 F.2d 758, 205 USPQ 397 (CCPA 1980). The test has been thus articulated:

First, the claim is analyzed to determine whether a mathematical algorithm is directly or indirectly recited. Next, if a mathematical algorithm is found, the claim as a whole is further analyzed to determine whether the algorithm is "applied in any manner to physical elements or process steps," and, if it is, it "passes muster under § 101." In re Pardo, 684 F.2d 912, 915, 214 USPQ 673, 675-76 (CCPA 1982) (citing In re Abele, 684 F.2d 902, 214 USPQ 682 (CCPA 1982)). [FN5]

[FN5] The test has been the source of much confusion. In In re Abele, 684 F.2d 902, 214 USPQ 682 (CCPA 1982), the CCPA upheld claims applying "a mathematical formula within the context of a process which encompasses significantly more than the algorithm alone." *Id.* at 909.

Thus, the CCPA apparently inserted an additional consideration--the significance of additions to the algorithm. The CCPA appeared to abandon the application of the test in In re Taner, 681 F.2d 787, 214

USPQ 678 (CCPA 1982), only to subsequently "clarify" that the Freeman-Walter-Abele test was simply not the exclusive test for detecting unpatentable subject matter. In re Meyer, 688 F.2d 789, 796, 215 USPQ 193, 199 (CCPA 1982).

[9] After *Diehr* and *Chakrabarty*, the Freeman-Walter-Abele test has little, if any, applicability to determining the presence of statutory subject matter. As we pointed out in *Alappat*, 33 F.3d at 1543, 31 USPQ2d at 1557, application of the test could be misleading, because a process, machine, manufacture, or composition of matter employing a law of nature, natural phenomenon, or abstract idea is patentable subject matter even though a law of nature, natural phenomenon, or abstract idea would not, by itself, be entitled to such protection. [FN6] The test determines the presence of, for example, an algorithm. Under *Benson*, this may have been a sufficient indicium of nonstatutory subject matter. However, after *Diehr* and *Alappat*, the mere fact that a claimed invention involves inputting numbers, calculating numbers, outputting numbers, and storing numbers, in and of itself, would not render it nonstatutory subject matter, unless, of course, its operation does not produce a "useful, concrete and tangible result." *Alappat*, 33 F.3d at 1544, 31 USPQ2d at 1557. [FN7] After all, as we have repeatedly stated,

FN6. See e.g. *Parker v. Flook*, 437 U.S. 584, 590, 98 S.Ct. 2522, 57 L.Ed.2d 451 (1978) ("[A] process is not unpatentable simply because it contains a law of nature or a mathematical algorithm."); *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130, 68 S.Ct. 440, 92 L.Ed. 588 (1948) ("He who discovers a hitherto unknown phenomenon of nature has no claim to a monopoly of it which the law recognizes. If there is to be invention from such a discovery, it must come from the application of the law to a new and useful end."); *Mackay Radio & Tel. Co. v. Radio Corp. of Am.*, 306 U.S. 86, 94, 59 S.Ct. 427, 83 L.Ed. 506 (1939) ("While a scientific truth, or the mathematical expression of it, is not a patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be.").

[W]hen a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect (e.g., transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of § 101.

Diehr, 450 U.S. at 192, 101 S.Ct. 1048; see also In re Iwahashi, 888 F.2d 1370, 1375, 12 USPQ2d 1908, 1911 (Fed.Cir.1989); Taner, 681 F.2d

at 789, 214 USPQ at 680. The dispositive inquiry is whether the claim as a whole is directed to statutory subject matter. It is irrelevant that a claim may contain, as part of the whole, subject matter which would not be patentable by itself. "A claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula, computer program or digital computer." *Diehr*, 450 U.S. at 187, 101 S.Ct. 1048.

FN7. As the Supreme Court expressly stated in *Diehr*, its own holdings in *Benson* and *Flook* "stand for no more than these long-established principles" that abstract ideas and natural phenomena are not patentable. *Diehr*, 450 U.S. at 185, 101 S.Ct. 1048 (citing *Chakrabarty*, 447 U.S. at 309, 100 S.Ct. 2204 and *Funk Bros.*, 333 U.S. at 130, 68 S.Ct. 440.).

every step-by-step process, be it electronic or chemical or mechanical, involves an algorithm in the broad sense of the term. Since § 101 expressly includes processes as a category of inventions which may be patented and § 100(b) further defines the word "process" as meaning "process, art or *1375

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method, and includes a new use of a known process, machine, manufacture, composition of matter, or material," it

follows that it is no ground for holding a claim is directed to nonstatutory subject matter to say it includes or is directed to an algorithm. This is why the proscription against patenting has been limited to *mathematical* algorithms....

In re Iwahashi, 888 F.2d 1370, 1374, 12 USPQ2d 1908, 1911 (Fed.Cir.1989) (emphasis in the original). [FN8]

FN8. In *In re Pardo*, 684 F.2d 912 (CCPA 1982), the CCPA narrowly limited "mathematical algorithm" to the execution of formulas with given data. In the same year, in *In re Meyer*, 688 F.2d 789, 215 USPQ 193 (CCPA 1982), the CCPA interpreted the same term to include any mental process that can be represented by a mathematical algorithm. This is also the position taken by the PTO in its Examination Guidelines, 61 Fed.Reg. 7478, 7483 (1996).

KC

[10] The question of whether a claim encompasses statutory subject matter should not focus on *which* of the four categories of subject matter a claim is directed to [FN9]--process, machine, manufacture, or composition of matter--but rather on the essential characteristics of the subject matter, in particular, its practical utility. Section 101 specifies that statutory subject matter must also satisfy the other "conditions and requirements" of Title 35, including novelty, nonobviousness, and adequacy of disclosure and notice. See *In re Warmerdam*, 33 F.3d 1354, 1359, 31 USPQ2d 1754, 1757-58 (Fed.Cir.1994). For purpose of our analysis, as noted above, claim 1 is directed to a machine programmed with the Hub and Spoke software and admittedly produces a "useful, concrete, and tangible result." *Alappat*, 33 F.3d at 1544, 31 USPQ2d at 1557. This renders it statutory subject matter, even if the useful result is expressed in numbers, such as price, profit, percentage, cost, or loss.

FN9. Of course, the subject matter must fall into at least one category of statutory subject matter.

The Business Method Exception

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[11] As an alternative ground for invalidating the '056 patent under § 101, the court relied on the judicially-created, so-called "business method" exception to statutory subject matter. We take this opportunity to lay this ill-conceived exception to rest. Since its inception, the "business method" exception has merely represented the application of some general, but no longer applicable legal principle, perhaps arising out of the "requirement for invention"--which was eliminated by § 103. Since the 1952 Patent Act, business methods have been, and should have been, subject to the same legal requirements for patentability as applied to any other process or method. [FN10]

FN10. As Judge Newman has previously stated,

[The business method exception] is ... an unwarranted encumbrance to the definition of statutory subject matter in section 101, that [should] be discarded as error-prone, redundant, and obsolete. It merits retirement from the glossary of section 101.... All of the "doing business" cases could have been decided using the clearer concepts of Title 35. Patentability does not turn on whether the claimed method does "business" instead of something else, but on whether the method, viewed as a whole, meets the requirements of patentability as set forth in Sections 102, 103, and 112 of the Patent Act.

In re Schrader, 22 F.3d 290, 298, 30 USPQ2d 1455, 1462 (Fed.Cir.1994) (Newman, J., dissenting).

The business method exception has never been invoked by this court, or the CCPA, to deem an invention unpatentable. [FN11] Application of this particular exception has always been preceded by a ruling based on some clearer concept of Title 35 or, more commonly, application of the abstract idea exception based on finding a mathematical algorithm. Illustrative is the CCPA's analysis in *In re Howard*, 55 C.C.P.A. 1121, 394 F.2d 869, 157 USPQ 615 (CCPA 1968), wherein the court affirmed the Board of Appeals' rejection of the claims for lack of novelty and found it unnecessary to reach the Board's section 101 ground that a method of doing business is "inherently

unpatentable." *Id.* at 872, 55 C.C.P.A. 1121, 394 F.2d 869, 157 USPQ at 617. [FN12]

FN11. See Rinaldo Del Gallo, III, *Are "Methods of Doing Business" Finally out of Business as a Statutory Rejection?*, 38 IDEA 403, 435 (1998).

FN12. See also *Dann v. Johnston*, 425 U.S. 219, 96 S.Ct. 1393, 47 L.Ed.2d 692 (1976) (the Supreme Court declined to discuss the section 101 argument concerning the computerized financial record-keeping system, in view of the Court's holding of patent invalidity under section 103); *In re Chatfield*, 545 F.2d 152, 157, 191 USPQ 730, 735 (CCPA 1976); *Ex parte Murray*, 9 USPQ2d 1819, 1820 (Bd.Pat.App & Interf. 1988) ("[T]he claimed accounting method [requires] no more than the entering, sorting, debiting and totaling of expenditures as necessary preliminary steps to issuing an expense analysis statement") states grounds of obviousness or lack of novelty, not of non-statutory subject matter.

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Similarly, *In re Schrader*, 22 F.3d 290, 30 USPQ2d 1455 (Fed.Cir.1994), while making reference to the business method exception, turned on the fact that the claims implicitly recited an abstract idea in the form of a mathematical algorithm and there was no "transformation or conversion of subject matter representative of or constituting physical activity or objects." 22 F.3d at 294, 30 USPQ2d at 1459 (emphasis omitted). [FN13]

FN13. Any historical distinctions between a method of "doing" business and the means of carrying it out blur in the complexity of modern business systems. See *Paine, Webber, Jackson & Curtis v. Merrill Lynch*, 564 F.Supp. 1358, 218 USPQ 212 (D.Del.1983), (holding a computerized system of cash management was held to be statutory subject matter.)

State Street argues that we acknowledged the validity of the business method exception in *Alappat* when we discussed *Maucorps* and *Meyer*:

Maucorps dealt with a business methodology for deciding how salesmen should best handle respective customers and *Meyer* involved a "system" for aiding a neurologist in diagnosing patients. Clearly, neither of the alleged "inventions" in those cases falls within any § 101 category.

Alappat, 33 F.3d at 1541, 31 USPQ2d at 1555. However, closer scrutiny of these cases reveals that the claimed inventions in both *Maucorps* and *Meyer* were rejected as abstract ideas under the mathematical algorithm exception, not the business method exception. See *In re Maucorps*, 609 F.2d 481, 484, 203 USPQ 812, 816 (CCPA 1979); *In re Meyer*, 688 F.2d 789, 796, 215 USPQ 193, 199 (CCPA 1982). [FN14]

FN14. Moreover, these cases were subject to the *Benson* era Freeman-Walter-Abele test--in other words, analysis as it existed before *Diehr* and *Alappat*.

Even the case frequently cited as establishing the business method exception to statutory subject matter, *Hotel Security Checking Co. v. Lorraine Co.*, 160 F. 467 (2d Cir.1908), did not rely on the exception to strike the patent. [FN15] In that case, the patent was found invalid for lack of novelty and "invention," not because it was improper subject matter for a patent. The court stated "the fundamental principle of the system is as old as the art of bookkeeping, i.e., charging the goods of the employer to the agent who takes them." *Id.* at 469. "If at the time of [the patent] application, there had been no system of bookkeeping of any kind in restaurants, we would be confronted with the question whether a new and useful system of cash registering and account checking is such an art as is patentable under the statute." *Id.* at 472.

FN15. See also *Loew's Drive-in Theatres v. Park-in Theatres*, 174 F.2d 547, 552 (1st Cir.1949) (holding that the means for carrying out the system of transacting business lacked "an exercise of the faculty of invention"); *In re Patton*, 29 C.C.P.A. 982, 127 F.2d 324, 327-28 (CCPA 1942) (finding claims invalid as

failing to define patentable subject matter over the references of record.); *Berardini v. Tocci*, 190 F. 329, 332 (C.C.S.D.N.Y.1911); *In re Wait*, 22 C.C.P.A. 822, 73 F.2d 982, 983 (CCPA 1934) ("[S]urely these are, and always have been, essential steps in all dealings of this nature, and even conceding, without holding, that some methods of doing business might present patentable novelty, we think such novelty is lacking here."); *In re Howard*, 55 C.C.P.A. 1121, 394 F.2d 869, 157 USPO 615, 617 (CCPA 1968) ("[W]e therefore affirm the decision of the Board of Appeals on the ground that the claims do not define a novel process [so we find it] unnecessary to consider the issue of whether a method of doing business is inherently unpatentable."). Although a clearer statement was made in *In re Patton*, 29 C.C.P.A. 982, 127 F.2d 324, 327, 53 USPO 376, 379 (CCPA 1942) that a system for transacting business, separate from the means for carrying out the system, is not patentable subject matter, the jurisprudence does not require the creation of a distinct business class of unpatentable subject matter.

This case is no exception. The district court announced the precepts of the business method exception as set forth in several treatises, but noted as its primary reason for finding the patent invalid under the business method exception as follows:

If Signature's invention were patentable, any financial institution desirous of implementing a multi-tiered funding complex modelled (sic) on a Hub and Spoke configuration would be required to seek Signature's permission before embarking on *1377

(Cite as: 149 F.3d 1368, *1377) —————

such a project. *This is so because the '056 Patent is claimed [sic] sufficiently broadly to foreclose virtually any computer-implemented accounting method necessary to manage this type of financial structure.*

927 F.Supp. 502, 516, 38 USPO2d 1530, 1542 (emphasis added). Whether the patent's claims are too broad to be patentable is not to be judged under § 101, but rather under §§ 102, 103 and 112. Assuming the above statement to be correct, it has nothing to do with whether what is claimed is statutory subject matter.

In view of this background, it comes as no surprise that in the most recent edition of the Manual of Patent Examining Procedures (MPEP) (1996), a paragraph of § 706.03(a) was deleted. In past editions it read:

Though seemingly within the category of process or method, a method of doing business can be rejected as not being within the statutory classes. See *Hotel Security Checking Co. v. Lorraine Co.*, 160 F. 467 (2nd Cir.1908) and *In re Wait*, 24 USPO 88, 22 C.C.P.A. 822, 73 F.2d 982 (1934).

MPEP § 706.03(a) (1994). This acknowledgment is buttressed by the U.S. Patent and Trademark 1996 Examination Guidelines for Computer Related Inventions which now read:

Office personnel have had difficulty in properly treating claims directed to methods of doing business. Claims should not be categorized as methods of doing business. Instead such claims should be treated like any other process claims.

Examination Guidelines, 61 Fed.Reg. 7478, 7479 (1996). We agree that this is precisely the manner in which this type of claim should be treated. Whether the claims are directed to subject matter within § 101 should not turn on whether the claimed subject matter does "business" instead of something else.

CONCLUSION

The appealed decision is reversed and the case is remanded to the district court for further proceedings consistent with this opinion.

REVERSED and REMANDED.

C.A.Fed. (Mass.), 1998.

State Street Bank & Trust Co. v. Signature Financial Group, Inc.

149 F.3d 1368, 47 U.S.P.Q.2d 1596

Briefs and Other Related Documents (Back to top)

- 1996 WL 33419516 (Appellate Brief) Reply Brief for Appellant Signature Financial Group, Inc. (Nov. 04, 1996) [Original Image of this Document with Appendix \(PDF\)](#) 
- 1996 WL 33419513 (Appellate Brief) Brief of Appellee State Street Bank and Trust Co. (Oct. 07, 1996) [Original Image of this Document with Appendix \(PDF\)](#) 
- 1996 WL 33419514 (Appellate Brief) Brief of Amicus Curiae Visa International Service Association and Mastercard International Incorporated Urging Affirmance of the Judgment Under Review in State Street Bank & Trust Co. v. Signature Financial Group, Inc. (Oct. 07, 1996) [Original Image of this Document \(PDF\)](#) 
- 1996 WL 33419512 (Appellate Brief) Brief for Appellant Signature Financial Group, Inc. (Jul. 22, 1996) [Original Image of this Document with Appendix \(PDF\)](#) 
- 1996 WL 33419515 (Appellate Brief) Brief of Amicus Curiae Information Technology Industry Council in Support of

Defendant-Appellant Signature Financial Group, Inc. (Jul. 22, 1996)[Original Image of this Document \(PDF\)](#)

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Briefs and Other Related Documents

United States Court of Appeals,
Federal Circuit.
STATE STREET BANK & TRUST CO., Plaintiff-Appellee,
v.
SIGNATURE FINANCIAL GROUP, INC. Defendant-Appellant.
No. 96-1327.
July 23, 1998.

Bank brought action against assignee of patent for computerized accounting system used to manage mutual fund investment structure, seeking declaratory judgment that patent was invalid and unenforceable. The United States District Court for the District of Massachusetts, Patti B. Saris, J., 927 F.Supp. 502, granted summary judgment for bank, and assignee appealed. The Court of Appeals, Rich, Circuit Judge, held that: (1) patent was directed to machine, not process; (2) invention was not unpatentable under mathematical algorithm exception to patentability; and (3) there is no "business method" exception to patentability.

Reversed and remanded.

West Headnotes

[1] KeyCite Notes

- ⇒ 170B Federal Courts
 - ⇒ 170B^{VIII} Courts of Appeals
 - ⇒ 170B^{VIII}(K) Scope, Standards, and Extent
 - ⇒ 170B^{VIII}(K)1 In General
 - ⇒ 170Bk763 Extent of Review Dependent on Nature of Decision Appealed from
 - ⇒ 170Bk766 k. Summary Judgment. Most Cited Cases

On appeal, Court of Appeals is not bound to give deference to the district court's grant of summary judgment, but must make an independent determination that the standards for summary judgment have been met.

[2] KeyCite Notes

- ⇒ 291 Patents
 - ⇒ 291XII Infringement
 - ⇒ 291XII(C) Suits in Equity
 - ⇒ 291k324 Appeal
 - ⇒ 291k324.5 k. Scope and Extent of Review in General. Most Cited Cases

Court of Appeals reviews patent claim construction *de novo* including any allegedly fact-based questions relating to claim construction.

[3] KeyCite Notes

- ⇒ 291 Patents
 - ⇒ 291XII Infringement
 - ⇒ 291XII(C) Suits in Equity

↳ 291k324 Appeal↳ 291k324.5 k. Scope and Extent of Review in General. Most Cited Cases

Court of Appeals reviews statutory construction de novo.

[4] KeyCite Notes↳ 291 Patents↳ 291IV Applications and Proceedings Thereon↳ 291k101 Claims↳ 291k101(8) k. Functions, Advantages or Results of Invention. Most Cited Cases

"Machine" claims having means-plus-function clauses may only be reasonably viewed as process claims if there is no supporting structure in the written description that corresponds to the claimed "means" elements.

[5] KeyCite Notes↳ 291 Patents↳ 291IV Applications and Proceedings Thereon↳ 291k101 Claims↳ 291k101(11) k. Process or Method Claims. Most Cited Cases

Patent claiming data processing system for managing a financial services configuration of a portfolio established as a partnership, which machine was made up of, at the very least, specific structures disclosed in written description and corresponding to means-plus-function elements recited in claim, was directed to machine, not process. 35 U.S.C.A. § 101.

[6] KeyCite Notes↳ 291 Patents↳ 291I Subjects of Patents↳ 291k3 k. Constitutional and Statutory Provisions. Most Cited Cases

It is improper to read limitations into statute generally setting forth patentable subject matter where the legislative history indicates that Congress clearly did not intend such limitations. 35 U.S.C.A. § 101.

[7] KeyCite Notes↳ 291 Patents↳ 291I Subjects of Patents↳ 291k4 Arts↳ 291k6 k. Principles or Laws of Nature. Most Cited Cases

Unpatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting disembodied concepts or truths that are not "useful"; to be patentable an algorithm must be applied in a "useful" way. 35 U.S.C.A. § 101.

[8] KeyCite Notes↳ 291 Patents↳ 291I Subjects of Patents↳ 291k4 Arts↳ 291k6 k. Principles or Laws of Nature. Most Cited Cases

Transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, for purpose of managing mutual fund investment structure, was practical application of a mathematical algorithm, formula, or calculation, because it produced useful, concrete and tangible result, and claimed machine thus was not unpatentable under mathematical algorithm exception to patentability. 35 U.S.C.A. § 101.



[9] KeyCite Notes

↳ 291 Patents

↳ 291I Subjects of Patents

↳ 291k4 Arts

↳ 291k6 k. Principles or Laws of Nature. Most Cited Cases

Dispositive inquiry in determining patentability of invention notwithstanding its inclusion of mathematical algorithm is whether the claim as a whole is directed to statutory subject matter; it is irrelevant that a claim may contain, as part of the whole, subject matter which would not be patentable by itself, and claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula, computer program or digital computer. 35 U.S.C.A. § 101.



[10] KeyCite Notes

↳ 291 Patents

↳ 291IV Applications and Proceedings Thereon

↳ 291k101 Claims

↳ 291k101(1) k. In General. Most Cited Cases

The question of whether a patent claim encompasses statutory subject matter should not focus on which of the four categories of subject matter a claim is directed to, namely, process, machine, manufacture, or composition of matter, but rather on the essential characteristics of the subject matter, in particular, its practical utility. 35 U.S.C.A. § 101.



[11] KeyCite Notes

↳ 291 Patents

↳ 291I Subjects of Patents

↳ 291k4 Arts

↳ 291k7.14 k. Particular Processes or Methods as Constituting Invention. Most Cited Cases

Business methods are subject to same legal requirements for patentability as applied to any other process or method, and thus there is no "business method" exception to patentability. 35 U.S.C.A. § 101.



KeyCite Notes

↳ 291 Patents

↳ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents

↳ 291k328 Patents Enumerated

↳ 291k328(2) k. Original Utility. Most Cited Cases

5,193,056. Cited.

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William L. Patton, Ropes & Gray, Boston, Massachusetts, argued for plaintiff-appellee. With him on the brief were James L. Sigel and James S. DeGraw. Also on the brief was Maurice E. Gauthier, Samuels, Gauthier, Stevens &

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William T. Ellis, Foley & Lardner, Washington, D.C., for amicus curiae Information Technology Industry Council. With him on the brief were Harold C. Wegner, *1370

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Richard L. Schwaab, and Mary Michelle Kile. Of counsel was John F. Cooney, Venable, Baetjer, Howard & Civiletti, LLP.

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Before RICH, PLAGER, and BRYSON, Circuit Judges.

RICH, Circuit Judge.

Signature Financial Group, Inc. (Signature) appeals from the decision of the United States District Court for the District of Massachusetts granting a motion for summary judgment in favor of State Street Bank & Trust Co. (State Street), finding U.S. Patent No. 5,193,056 (the '056 patent) invalid on the ground that the claimed subject matter is not encompassed by 35 U.S.C. § 101 (1994). See State Street Bank & Trust Co. v. Signature Financial Group, Inc., 927 F.Supp. 502, 38 USPQ2d 1530 (D.Mass.1996). We reverse and remand because we conclude that the patent claims are directed to statutory subject matter.

BACKGROUND

Signature is the assignee of the '056 patent which is entitled "Data Processing System for Hub and Spoke Financial Services Configuration." The '056 patent issued to Signature on 9 March 1993, naming R. Todd Boes as the inventor. The '056 patent is generally directed to a data processing system (the system) for implementing an investment structure which was developed for use in Signature's business as an administrator and accounting agent for mutual funds. In essence, the system, identified by the proprietary name Hub and Spoke®, facilitates a structure whereby mutual funds (Spokes) pool their assets in an investment portfolio (Hub) organized as a partnership. This investment configuration provides the administrator of a mutual fund with the advantageous combination of economies of scale in administering investments coupled with the tax advantages of a partnership.

State Street and Signature are both in the business of acting as custodians and accounting agents for multi-tiered partnership fund financial services. State Street negotiated with Signature for a license to use its patented data processing system described and claimed in the '056 patent. When negotiations broke down, State Street brought a declaratory judgment action asserting invalidity, unenforceability, and noninfringement in Massachusetts district court, and then filed a motion for partial summary judgment of patent invalidity for failure to claim statutory subject matter under § 101. The motion was granted and this appeal followed.

DISCUSSION

[1] [2] [3] On appeal, we are not bound to give deference to the district court's grant of summary judgment, but must make an independent determination that the standards for summary judgment have been met. Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1560, 19 USPQ2d 1111, 1114 (Fed.Cir.1991). Summary judgment is properly granted where there are no genuine issues of material fact and the moving party is entitled to judgment as a matter of law. Fed.R.Civ.P. 56(c). The substantive issue at hand, whether the '056 patent is invalid for failure to claim statutory subject matter under § 101, is a matter of both claim construction and statutory construction. "[W]e review claim construction *de novo* including any allegedly fact-based questions relating to claim construction." Cybor Corp. v. FAS Techs., 138 F.3d 1448, 1451, 46 USPQ2d 1169, 1174 (Fed.Cir.1998) (*in banc*). We also review statutory construction *de novo*. See Romero v. United States, 38 F.3d 1204, 1207 (Fed.Cir.1994). We hold that declaratory judgment plaintiff State Street was not entitled to the grant of summary judgment of invalidity of the '056 patent under § 101 as a matter of law, because the patent claims are directed to statutory subject matter. The following facts pertinent to the statutory subject matter issue are either undisputed or represent the version alleged by the nonmovant. See *1371

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Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986). The patented invention relates generally to a system that allows an administrator to monitor and record the financial information flow and make all calculations necessary for maintaining a partner fund financial services configuration. As previously mentioned, a partner fund financial services configuration essentially allows several mutual funds, or "Spokes," to

pool their investment funds into a single portfolio, or "Hub," allowing for consolidation of, *inter alia*, the costs of administering the fund combined with the tax advantages of a partnership. In particular, this system provides means for a daily allocation of assets for two or more Spokes that are invested in the same Hub. The system determines the percentage share that each Spoke maintains in the Hub, while taking into consideration daily changes both in the value of the Hub's investment securities and in the concomitant amount of each Spoke's assets.

In determining daily changes, the system also allows for the allocation among the Spokes of the Hub's daily income, expenses, and net realized and unrealized gain or loss, calculating each day's total investments based on the concept of a book capital account. This enables the determination of a true asset value of each Spoke and accurate calculation of allocation ratios between or among the Spokes. The system additionally tracks all the relevant data determined on a daily basis for the Hub and each Spoke, so that aggregate year end income, expenses, and capital gain or loss can be determined for accounting and for tax purposes for the Hub and, as a result, for each publicly traded Spoke.

It is essential that these calculations are quickly and accurately performed. In large part this is required because each Spoke sells shares to the public and the price of those shares is substantially based on the Spoke's percentage interest in the portfolio. In some instances, a mutual fund administrator is required to calculate the value of the shares to the nearest penny within as little as an hour and a half after the market closes. Given the complexity of the calculations, a computer or equivalent device is a virtual necessity to perform the task.

The '056 patent application was filed 11 March 1991. It initially contained six "machine" claims, which incorporated means-plus-function clauses, and six method claims. According to Signature, during prosecution the examiner contemplated a § 101 rejection for failure to claim statutory subject matter. However, upon cancellation of the six method claims, the examiner issued a notice of allowance for the remaining present six claims on appeal. Only claim 1 is an independent claim.

KC

[4] The district court began its analysis by construing the claims to be directed to a process, with each "means" clause merely representing a step in that process. However, "machine" claims having "means" clauses may only be reasonably viewed as process claims if there is no supporting structure in the written description that corresponds to the claimed "means" elements. See *In re Alappat*, 33 F.3d 1526, 1540-41, 31 USPQ2d 1545, 1554 (Fed.Cir.1994) (*in banc*). This is not the case now before us.

KC

[5] When independent claim 1 is properly construed in accordance with § 112, ¶ 6, it is directed to a machine, as demonstrated below, where representative claim 1 is set forth, the subject matter in brackets stating the structure the written description discloses as corresponding to the respective "means" recited in the claims.

1. A data processing system for managing a financial services configuration of a portfolio established as a partnership, each partner being one of a plurality of funds, comprising:
(a) computer processor means [a personal computer including a CPU] for processing data;
(b) storage means [a data disk] for storing data on a storage medium;
(c) first means [an arithmetic logic circuit configured to prepare the data disk to magnetically store selected data] for initializing the storage medium;
(d) second means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases or decreases based on specific input, allocate the results on a percentage basis, and store the output in a *1372

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separate file] for processing data regarding assets in the portfolio and each of the funds from a previous day and data regarding increases or decreases in each of the funds, [sic, funds'] assets and for allocating the percentage share that each fund holds in the portfolio;

(e) third means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file] for processing data regarding daily incremental income, expenses, and net realized gain or loss for the portfolio and for allocating such data among each fund;
(f) fourth means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file] for processing data regarding daily net unrealized gain or loss for the portfolio and for allocating such data among each fund; and

(g) fifth means [an arithmetic logic circuit configured to retrieve information from specific files, calculate that information on an aggregate basis and store the output in a separate file] for processing data regarding aggregate year-end income, expenses, and capital gain or loss for the portfolio and each of the funds.

Each claim component, recited as a "means" plus its function, is to be read, of course, pursuant to § 112, ¶ 6, as inclusive of the "equivalents" of the structures disclosed in the written description portion of the specification. Thus, claim 1, properly construed, claims a machine, namely, a data processing system for managing a financial services configuration of a portfolio established as a partnership, which machine is made up of, at the very least, the specific

structures disclosed in the written description and corresponding to the means-plus-function elements (a)-(g) recited in the claim. A "machine" is proper statutory subject matter under § 101. We note that, for the purposes of a § 101 analysis, it is of little relevance whether claim 1 is directed to a "machine" or a "process," as long as it falls within at least one of the four enumerated categories of patentable subject matter, "machine" and "process" being such categories.

This does not end our analysis, however, because the court concluded that the claimed subject matter fell into one of two alternative judicially-created exceptions to statutory subject matter. [FN1] The court refers to the first exception as the "mathematical algorithm" exception and the second exception as the "business method" exception. Section 101 reads:

FN1. Indeed, although we do not make this determination here, the judicially created exceptions, i.e., abstract ideas, laws of nature, etc., should be applicable to all categories of statutory subject matter, as our own precedent suggests. See *Alappat*, 33 F.3d at 1542, 31 USPQ2d at 1556; see also *In re Johnston*, 502 F.2d 765, 183 USPQ 172 (CCPA 1974) (Rich, J., dissenting).

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The plain and unambiguous meaning of § 101 is that any invention falling within one of the four stated categories of statutory subject matter may be patented, provided it meets the other requirements for patentability set forth in Title 35, i.e., those found in §§ 102, 103, and 112, ¶ 2. [FN2]

FN2. As explained in *In re Bergy*, 596 F.2d 952, 960, 201 USPQ 352, 360 (CCPA 1979) (emphases and footnote omitted):

The first door which must be opened on the difficult path to patentability is § 101 The person approaching that door is an inventor, whether his invention is patentable or not Being an inventor or having an invention, however, is no guarantee of opening even the first door. What kind of an invention or discovery is it? In dealing with the question of kind, as distinguished from the qualitative conditions which make the invention patentable, § 101 is broad and general; its language is: "any * * * process, machine, manufacture, or composition of matter, or any * * * improvement thereof." Section 100(b) further expands "process" to include "art or method, and * * * a new use of a known process, machine, manufacture, composition of matter, or material." If the invention, as the inventor defines it in his claims (pursuant to § 112, second paragraph), falls into any one of the named categories, he is allowed to pass through to the second door, which is § 102; "novelty and loss of right to patent" is the sign on it. Notwithstanding the words "new and useful" in § 101, the invention is not examined under that statute for novelty because that is not the statutory scheme of things or the long-

established administrative practice.

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KC

[6] The repetitive use of the expansive term "any" in § 101 shows Congress's intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in § 101. Indeed, the Supreme Court has acknowledged that Congress intended § 101 to extend to "anything under the sun that is made by man." *Diamond v. Chakrabarty*, 447 U.S. 303, 309, 100 S.Ct. 2204, 65 L.Ed.2d 144 (1980); see also *Diamond v. Diehr*, 450 U.S. 175, 182, 101 S.Ct. 1048, 67 L.Ed.2d 155 (1981). [FN3] Thus, it is improper to read limitations into § 101 on the subject matter that may be patented where the legislative history indicates that Congress clearly did not intend such limitations. See *Chakrabarty*, 447 U.S. at 308, 100 S.Ct. 2204 ("We have also cautioned that courts 'should not read into the patent laws limitations and conditions which the legislature has not expressed.' " (citations omitted)).

FN3. The Committee Reports accompanying the 1952 Act inform us that Congress intended statutory

subject matter to "include anything under the sun that is made by man." S.Rep. No. 82-1979 at 5 (1952); H.R.Rep. No. 82-1923 at 6 (1952).

The "Mathematical Algorithm" Exception

The Supreme Court has identified three categories of subject matter that are unpatentable, namely "laws of nature, natural phenomena, and abstract ideas." Diehr, 450 U.S. at 185, 101 S.Ct. 1048. Of particular relevance to this case, the Court has held that mathematical algorithms are not patentable subject matter to the extent that they are merely abstract ideas. See Diehr, 450 U.S. 175, 101 S.Ct. 1048, *passim*; Parker v. Flook, 437 U.S. 584, 98 S.Ct. 2522, 57 L.Ed.2d 451 (1978); Gottschalk v. Benson, 409 U.S. 63, 93 S.Ct. 253, 34 L.Ed.2d 273 (1972). In Diehr, the Court explained that certain types of mathematical subject matter, standing alone, represent nothing more than abstract ideas until reduced to some type of practical application, i.e., "a useful, concrete and tangible result." Alappat, 33 F.3d at 1544, 31 USPQ2d at 1557. [FN4]

[FN4] This has come to be known as the mathematical algorithm exception. This designation has led to some confusion, especially given the Freeman-Walter-Abele analysis. By keeping in mind that the mathematical algorithm is unpatentable only to the extent that it represents an abstract idea, this confusion may be ameliorated.

[7]  Unpatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting disembodied concepts or truths that are not "useful." From a practical standpoint, this means that to be patentable an algorithm must be applied in a "useful" way. In Alappat, we held that data, transformed by a machine through a series of mathematical calculations to produce a smooth waveform display on a rasterizer monitor, constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it produced "a useful, concrete and tangible result"--the smooth waveform. Similarly, in Arrhythmia Research Technology Inc. v. Corazonix Corp., 958 F.2d 1053, 22 USPQ2d 1033 (Fed.Cir.1992), we held that the transformation of electrocardiograph signals from a patient's heartbeat by a machine through a series of mathematical calculations constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it corresponded to a useful, concrete or tangible thing--the condition of a patient's heart.

[8]  Today, we hold that the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces "a useful, concrete and tangible result"--a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.

The district court erred by applying the Freeman-Walter-Abele test to determine whether the claimed subject matter was an unpatentable abstract idea. The Freeman-Walter-Abele test was designed by the Court *1374

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of Customs and Patent Appeals, and subsequently adopted by this court, to extract and identify unpatentable mathematical algorithms in the aftermath of Benson and Flook. See In re Freeman, 573 F.2d 1237, 197 USPQ 464 (CCPA 1978) as modified by In re Walter, 618 F.2d 758, 205 USPQ 397 (CCPA 1980). The test has been thus articulated:

First, the claim is analyzed to determine whether a mathematical algorithm is directly or indirectly recited. Next, if a mathematical algorithm is found, the claim as a whole is further analyzed to determine whether the algorithm is "applied in any manner to physical elements or process steps," and, if it is, it "passes muster under § 101." In re Pardo, 684 F.2d 912, 915, 214 USPQ 673, 675-76 (CCPA 1982) (citing In re Abele, 684 F.2d 902, 214 USPQ 682 (CCPA 1982)). [FN5]

[FN5] The test has been the source of much confusion. In In re Abele, 684 F.2d 902, 214 USPQ 682 (CCPA 1982), the CCPA upheld claims applying "a mathematical formula within the context of a process which encompasses significantly more than the algorithm alone." Id. at 909.

Thus, the CCPA apparently inserted an additional consideration--the significance of additions to the algorithm. The CCPA appeared to abandon the application of the test in In re Taner, 681 F.2d 787, 214

USPQ 678 (CCPA 1982), only to subsequently "clarify" that the Freeman-Walter-Abele test was simply not the exclusive test for detecting unpatentable subject matter. In re Meyer, 688 F.2d 789, 796, 215 USPQ 193, 199 (CCPA 1982).

[91] After *Diehr* and *Chakrabarty*, the Freeman-Walter-Abele test has little, if any, applicability to determining the presence of statutory subject matter. As we pointed out in *Alappat*, 33 F.3d at 1543, 31 USPQ2d at 1557, application of the test could be misleading, because a process, machine, manufacture, or composition of matter employing a law of nature, natural phenomenon, or abstract idea is patentable subject matter even though a law of nature, natural phenomenon, or abstract idea would not, by itself, be entitled to such protection. [FN6] The test determines the presence of, for example, an algorithm. Under *Benson*, this may have been a sufficient indicium of nonstatutory subject matter. However, after *Diehr* and *Alappat*, the mere fact that a claimed invention involves inputting numbers, calculating numbers, outputting numbers, and storing numbers, in and of itself, would not render it nonstatutory subject matter, unless, of course, its operation does not produce a "useful, concrete and tangible result." *Alappat*, 33 F.3d at 1544, 31 USPQ2d at 1557. [FN7] After all, as we have repeatedly stated,

FN6. See e.g. *Parker v. Flook*, 437 U.S. 584, 590, 98 S.Ct. 2522, 57 L.Ed.2d 451 (1978) ("[A] process is not unpatentable simply because it contains a law of nature or a mathematical algorithm."); *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130, 68 S.Ct. 440, 92 L.Ed. 588 (1948) ("He who discovers a hitherto unknown phenomenon of nature has no claim to a monopoly of it which the law recognizes. If there is to be invention from such a discovery, it must come from the application of the law to a new and useful end."); *Mackay Radio & Tel. Co. v. Radio Corp. of Am.*, 306 U.S. 86, 94, 59 S.Ct. 427, 83 L.Ed. 506 (1939) ("While a scientific truth, or the mathematical expression of it, is not a patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be.").

[W]hen a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect (e.g., transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of § 101.

Diehr, 450 U.S. at 192, 101 S.Ct. 1048; see also In re Iwahashi, 888 F.2d 1370, 1375, 12 USPQ2d 1908, 1911 (Fed.Cir.1989); Taner, 681 F.2d

at 789, 214 USPQ at 680. The dispositive inquiry is whether the claim as a whole is directed to statutory subject matter. It is irrelevant that a claim may contain, as part of the whole, subject matter which would not be patentable by itself. "A claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula, computer program or digital computer." *Diehr*, 450 U.S. at 187, 101 S.Ct. 1048.

FN7. As the Supreme Court expressly stated in *Diehr*, its own holdings in *Benson* and *Flook* "stand for no more than these long-established principles" that abstract ideas and natural phenomena are not patentable. *Diehr*, 450 U.S. at 185, 101 S.Ct. 1048 (citing *Chakrabarty*, 447 U.S. at 309, 100 S.Ct. 2204 and *Funk Bros.*, 333 U.S. at 130, 68 S.Ct. 440.).

every step-by-step process, be it electronic or chemical or mechanical, involves an algorithm in the broad sense of the term. Since § 101 expressly includes processes as a category of inventions which may be patented and § 100(b) further defines the word "process" as meaning "process, art or *1375

(Cite as: 149 F.3d 1368, *1375)

method, and includes a new use of a known process, machine, manufacture, composition of matter, or material," it

follows that it is no ground for holding a claim is directed to nonstatutory subject matter to say it includes or is directed to an algorithm. This is why the proscription against patenting has been limited to *mathematical* algorithms....

In re Iwahashi, 888 F.2d 1370, 1374, 12 USPQ2d 1908, 1911 (Fed.Cir.1989) (emphasis in the original). [FN8]

[FN8] In In re Pardo, 684 F.2d 912 (CCPA 1982), the CCPA narrowly limited "mathematical algorithm" to the execution of formulas with given data. In the same year, in In re Meyer, 688 F.2d 789, 215 USPQ 193 (CCPA 1982), the CCPA interpreted the same term to include any mental process that can be represented by a mathematical algorithm. This is also the position taken by the PTO in its Examination Guidelines, 61 Fed.Reg. 7478, 7483 (1996).

[10] KC The question of whether a claim encompasses statutory subject matter should not focus on *which* of the four categories of subject matter a claim is directed to [FN9]--process, machine, manufacture, or composition of matter--but rather on the essential characteristics of the subject matter, in particular, its practical utility. Section 101 specifies that statutory subject matter must also satisfy the other "conditions and requirements" of Title 35, including novelty, nonobviousness, and adequacy of disclosure and notice. See In re Warmerdam, 33 F.3d 1354, 1359, 31 USPQ2d 1754, 1757-58 (Fed.Cir.1994). For purpose of our analysis, as noted above, claim 1 is directed to a machine programmed with the Hub and Spoke software and admittedly produces a "useful, concrete, and tangible result." Alappat, 33 F.3d at 1544, 31 USPQ2d at 1557. This renders it statutory subject matter, even if the useful result is expressed in numbers, such as price, profit, percentage, cost, or loss.

FN9. Of course, the subject matter must fall into at least one category of statutory subject matter.

The Business Method Exception

[11] KC As an alternative ground for invalidating the '056 patent under § 101, the court relied on the judicially-created, so-called "business method" exception to statutory subject matter. We take this opportunity to lay this ill-conceived exception to rest. Since its inception, the "business method" exception has merely represented the application of some general, but no longer applicable legal principle, perhaps arising out of the "requirement for invention"--which was eliminated by § 103. Since the 1952 Patent Act, business methods have been, and should have been, subject to the same legal requirements for patentability as applied to any other process or method. [FN10]

FN10. As Judge Newman has previously stated,

[The business method exception] is ... an unwarranted encumbrance to the definition of statutory subject matter in section 101, that [should] be discarded as error-prone, redundant, and obsolete. It merits retirement from the glossary of section 101.... All of the "doing business" cases could have been decided using the clearer concepts of Title 35. Patentability does not turn on whether the claimed method does "business" instead of something else, but on whether the method, viewed as a whole, meets the requirements of patentability as set forth in Sections 102, 103, and 112 of the Patent Act.

In re Schrader, 22 F.3d 290, 298, 30 USPQ2d 1455, 1462 (Fed.Cir.1994) (Newman, J., dissenting).

The business method exception has never been invoked by this court, or the CCPA, to deem an invention unpatentable. [FN11] Application of this particular exception has always been preceded by a ruling based on some clearer concept of Title 35 or, more commonly, application of the abstract idea exception based on finding a mathematical algorithm. Illustrative is the CCPA's analysis in In re Howard, 55 C.C.P.A. 1121, 394 F.2d 869, 157 USPQ 615 (CCPA 1968), wherein the court affirmed the Board of Appeals' rejection of the claims for lack of novelty and found it unnecessary to reach the Board's section 101 ground that a method of doing business is "inherently

unpatentable." *Id.* at 872, 55 C.C.P.A. 1121, 394 F.2d 869, 157 USPQ at 617. [FN12]

FN11. See *Rinaldo Del Gallo, III, Are "Methods of Doing Business" Finally out of Business as a Statutory Rejection?*, 38 IDEA 403, 435 (1998).

FN12. See also *Dann v. Johnston*, 425 U.S. 219, 96 S.Ct. 1393, 47 L.Ed.2d 692 (1976) (the Supreme Court declined to discuss the section 101 argument concerning the computerized financial record-keeping system, in view of the Court's holding of patent invalidity under section 103); *In re Chatfield*, 545 F.2d 152, 157, 191 USPQ 730, 735 (CCPA 1976); *Ex parte Murray*, 9 USPQ2d 1819, 1820 (Bd.Pat.App & Interf. 1988) ("[T]he claimed accounting method [requires] no more than the entering, sorting, debiting and totaling of expenditures as necessary preliminary steps to issuing an expense analysis statement") states grounds of obviousness or lack of novelty, not of non-statutory subject matter.

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Similarly, *In re Schrader*, 22 F.3d 290, 30 USPQ2d 1455 (Fed.Cir.1994), while making reference to the business method exception, turned on the fact that the claims implicitly recited an abstract idea in the form of a mathematical algorithm and there was no "transformation or conversion of subject matter representative of or constituting physical activity or objects." 22 F.3d at 294, 30 USPQ2d at 1459 (emphasis omitted). [FN13]

FN13. Any historical distinctions between a method of "doing" business and the means of carrying it out blur in the complexity of modern business systems. See *Paine, Webber, Jackson & Curtis v. Merrill Lynch*, 564 F.Supp. 1358, 218 USPQ 212 (D.Del.1983), (holding a computerized system of cash management was held to be statutory subject matter.)

State Street argues that we acknowledged the validity of the business method exception in *Alappat* when we discussed *Maucorps* and *Meyer*:

Maucorps dealt with a business methodology for deciding how salesmen should best handle respective customers and *Meyer* involved a "system" for aiding a neurologist in diagnosing patients. Clearly, neither of the alleged "inventions" in those cases falls within any § 101 category.

Alappat, 33 F.3d at 1541, 31 USPQ2d at 1555. However, closer scrutiny of these cases reveals that the claimed inventions in both *Maucorps* and *Meyer* were rejected as abstract ideas under the mathematical algorithm exception, not the business method exception. See *In re Maucorps*, 609 F.2d 481, 484, 203 USPQ 812, 816 (CCPA 1979); *In re Meyer*, 688 F.2d 789, 796, 215 USPQ 193, 199 (CCPA 1982). [FN14]

FN14. Moreover, these cases were subject to the *Benson* era Freeman-Walter-Abele test--in other words, analysis as it existed before *Diehr* and *Alappat*.

Even the case frequently cited as establishing the business method exception to statutory subject matter, *Hotel Security Checking Co. v. Lorraine Co.*, 160 F. 467 (2d Cir.1908), did not rely on the exception to strike the patent. [FN15] In that case, the patent was found invalid for lack of novelty and "invention," not because it was improper subject matter for a patent. The court stated "the fundamental principle of the system is as old as the art of bookkeeping, i.e., charging the goods of the employer to the agent who takes them." *Id.* at 469. "If at the time of [the patent] application, there had been no system of bookkeeping of any kind in restaurants, we would be confronted with the question whether a new and useful system of cash registering and account checking is such an art as is patentable under the statute." *Id.* at 472.

FN15. See also *Loew's Drive-in Theatres v. Park-in Theatres*, 174 F.2d 547, 552 (1st Cir.1949) (holding that the means for carrying out the system of transacting business lacked "an exercise of the faculty of invention"); *In re Patton*, 29 C.C.P.A. 982, 127 F.2d 324, 327-28 (CCPA 1942) (finding claims invalid as

failing to define patentable subject matter over the references of record.); *Berardini v. Tocci*, 190 F. 329, 332 (C.C.S.D.N.Y.1911); *In re Wait*, 22 C.C.P.A. 822, 73 F.2d 982, 983 (CCPA 1934) ("[S]urely these are, and always have been, essential steps in all dealings of this nature, and even conceding, without holding, that some methods of doing business might present patentable novelty, we think such novelty is lacking here."); *In re Howard*, 55 C.C.P.A. 1121, 394 F.2d 869, 157 USPQ 615, 617 (CCPA 1968) ("[W]e therefore affirm the decision of the Board of Appeals on the ground that the claims do not define a novel process [so we find it] unnecessary to consider the issue of whether a method of doing business is inherently unpatentable."). Although a clearer statement was made in *In re Patton*, 29 C.C.P.A. 982, 127 F.2d 324, 327, 53 USPQ 376, 379 (CCPA 1942) that a system for transacting business, separate from the means for carrying out the system, is not patentable subject matter, the jurisprudence does not require the creation of a distinct business class of unpatentable subject matter.

This case is no exception. The district court announced the precepts of the business method exception as set forth in several treatises, but noted as its primary reason for finding the patent invalid under the business method exception as follows:

If Signature's invention were patentable, any financial institution desirous of implementing a multi-tiered funding complex modelled (sic) on a Hub and Spoke configuration would be required to seek Signature's permission before embarking on *1377

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such a project. *This is so because the '056 Patent is claimed [sic] sufficiently broadly to foreclose virtually any computer-implemented accounting method necessary to manage this type of financial structure.*

927 F.Supp. 502, 516, 38 USPQ2d 1530, 1542 (emphasis added). Whether the patent's claims are too broad to be patentable is not to be judged under § 101, but rather under §§ 102, 103 and 112. Assuming the above statement to be correct, it has nothing to do with whether what is claimed is statutory subject matter.

In view of this background, it comes as no surprise that in the most recent edition of the Manual of Patent Examining Procedures (MPEP) (1996), a paragraph of § 706.03(a) was deleted. In past editions it read:

Though seemingly within the category of process or method, a method of doing business can be rejected as not being within the statutory classes. See *Hotel Security Checking Co. v. Lorraine Co.*, 160 F. 467 (2nd Cir.1908) and *In re Wait*, 24 USPQ 88, 22 C.C.P.A. 822, 73 F.2d 982 (1934).

MPEP § 706.03(a) (1994). This acknowledgment is buttressed by the U.S. Patent and Trademark 1996 Examination Guidelines for Computer Related Inventions which now read:

Office personnel have had difficulty in properly treating claims directed to methods of doing business. Claims should not be categorized as methods of doing business. Instead such claims should be treated like any other process claims.

Examination Guidelines, 61 Fed.Reg. 7478, 7479 (1996). We agree that this is precisely the manner in which this type of claim should be treated. Whether the claims are directed to subject matter within § 101 should not turn on whether the claimed subject matter does "business" instead of something else.

CONCLUSION

The appealed decision is reversed and the case is remanded to the district court for further proceedings consistent with this opinion.

REVERSED and REMANDED.

C.A.Fed. (Mass.), 1998.

State Street Bank & Trust Co. v. Signature Financial Group, Inc.

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Briefs and Other Related Documents (Back to top)

- 1996 WL 33419516 (Appellate Brief) Reply Brief for Appellant Signature Financial Group, Inc. (Nov. 04, 1996) [Original Image of this Document with Appendix \(PDF\)](#) 
- 1996 WL 33419513 (Appellate Brief) Brief of Appellee State Street Bank and Trust Co. (Oct. 07, 1996) [Original Image of this Document with Appendix \(PDF\)](#) 
- 1996 WL 33419514 (Appellate Brief) Brief of Amicus Curiae Visa International Service Association and Mastercard International Incorporated Urging Affirmance of the Judgment Under Review in State Street Bank & Trust Co. v. Signature Financial Group, Inc. (Oct. 07, 1996) [Original Image of this Document \(PDF\)](#) 
- 1996 WL 33419512 (Appellate Brief) Brief for Appellant Signature Financial Group, Inc. (Jul. 22, 1996) [Original Image of this Document with Appendix \(PDF\)](#) 
- 1996 WL 33419515 (Appellate Brief) Brief of Amicus Curiae Information Technology Industry Council in Support of

Defendant-Appellant Signature Financial Group, Inc. (Jul. 22, 1996) [Original Image of this Document \(PDF\)](#)

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Briefs and Other Related Documents

United States Court of Appeals,
Federal Circuit.
STATE STREET BANK & TRUST CO., Plaintiff-Appellee,
v.
SIGNATURE FINANCIAL GROUP, INC. Defendant-Appellant.
No. 96-1327.
July 23, 1998.

Bank brought action against assignee of patent for computerized accounting system used to manage mutual fund investment structure, seeking declaratory judgment that patent was invalid and unenforceable. The United States District Court for the District of Massachusetts, Patti B. Saris, J., 927 F.Supp. 502, granted summary judgment for bank, and assignee appealed. The Court of Appeals, Rich, Circuit Judge, held that: (1) patent was directed to machine, not process; (2) invention was not unpatentable under mathematical algorithm exception to patentability; and (3) there is no "business method" exception to patentability.

Reversed and remanded.

West Headnotes

[1] KeyCite Notes

- ☞ 170B Federal Courts
 - ☞ 170BVIII Courts of Appeals
 - ☞ 170BVIII(K) Scope, Standards, and Extent
 - ☞ 170BVIII(K)1 In General
 - ☞ 170Bk763 Extent of Review Dependent on Nature of Decision Appealed from
 - ☞ 170Bk766 k. Summary Judgment. Most Cited Cases

On appeal, Court of Appeals is not bound to give deference to the district court's grant of summary judgment, but must make an independent determination that the standards for summary judgment have been met.

[2] KeyCite Notes

- ☞ 291 Patents
 - ☞ 291XII Infringement
 - ☞ 291XII(C) Suits in Equity
 - ☞ 291k324 Appeal
 - ☞ 291k324.5 k. Scope and Extent of Review in General. Most Cited Cases

Court of Appeals reviews patent claim construction *de novo* including any allegedly fact-based questions relating to claim construction.

[3] KeyCite Notes

- ☞ 291 Patents
 - ☞ 291XII Infringement
 - ☞ 291XII(C) Suits in Equity

291k324 Appeal

291k324.5 k. Scope and Extent of Review in General. Most Cited Cases

Court of Appeals reviews statutory construction de novo.



[4] KeyCite Notes

291 Patents

291IV Applications and Proceedings Thereon

291k101 Claims

291k101(8) k. Functions, Advantages or Results of Invention. Most Cited Cases

"Machine" claims having means-plus-function clauses may only be reasonably viewed as process claims if there is no supporting structure in the written description that corresponds to the claimed "means" elements.



[5] KeyCite Notes

291 Patents

291IV Applications and Proceedings Thereon

291k101 Claims

291k101(11) k. Process or Method Claims. Most Cited Cases

Patent claiming data processing system for managing a financial services configuration of a portfolio established as a partnership, which machine was made up of, at the very least, specific structures disclosed in written description and corresponding to means-plus-function elements recited in claim, was directed to machine, not process. 35 U.S.C.A. § 101.



[6] KeyCite Notes

291 Patents

291I Subjects of Patents

291k3 k. Constitutional and Statutory Provisions. Most Cited Cases

It is improper to read limitations into statute generally setting forth patentable subject matter where the legislative history indicates that Congress clearly did not intend such limitations. 35 U.S.C.A. § 101.



[7] KeyCite Notes

291 Patents

291I Subjects of Patents

291k4 Arts

291k6 k. Principles or Laws of Nature. Most Cited Cases

Unpatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting disembodied concepts or truths that are not "useful"; to be patentable an algorithm must be applied in a "useful" way. 35 U.S.C.A. § 101.



[8] KeyCite Notes

291 Patents

291I Subjects of Patents

291k4 Arts

291k6 k. Principles or Laws of Nature. Most Cited Cases

Transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, for purpose of managing mutual fund investment structure, was practical application of a mathematical algorithm, formula, or calculation, because it produced useful, concrete and tangible result, and claimed machine thus was not unpatentable under mathematical algorithm exception to patentability. 35 U.S.C.A. § 101.



[9] KeyCite Notes

291 Patents

291I Subjects of Patents

291k4 Arts

291k6 k. Principles or Laws of Nature. Most Cited Cases

Dispositive inquiry in determining patentability of invention notwithstanding its inclusion of mathematical algorithm is whether the claim as a whole is directed to statutory subject matter; it is irrelevant that a claim may contain, as part of the whole, subject matter which would not be patentable by itself, and claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula, computer program or digital computer. 35 U.S.C.A. § 101.



[10] KeyCite Notes

291 Patents

291IV Applications and Proceedings Thereon

291k101 Claims

291k101(1) k. In General. Most Cited Cases

The question of whether a patent claim encompasses statutory subject matter should not focus on which of the four categories of subject matter a claim is directed to, namely, process, machine, manufacture, or composition of matter, but rather on the essential characteristics of the subject matter, in particular, its practical utility. 35 U.S.C.A. § 101.



[11] KeyCite Notes

291 Patents

291I Subjects of Patents

291k4 Arts

291k7.14 k. Particular Processes or Methods as Constituting Invention. Most Cited Cases

Business methods are subject to same legal requirements for patentability as applied to any other process or method, and thus there is no "business method" exception to patentability. 35 U.S.C.A. § 101.



KeyCite Notes

291 Patents

291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents

291k328 Patents Enumerated

291k328(2) k. Original Utility. Most Cited Cases

5,193,056. Cited.

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William L. Patton, Ropes & Gray, Boston, Massachusetts, argued for plaintiff-appellee. With him on the brief were James L. Sigel and James S. DeGraw. Also on the brief was Maurice E. Gauthier, Samuels, Gauthier, Stevens &

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William T. Ellis, Foley & Lardner, Washington, D.C., for amicus curiae Information Technology Industry Council. With him on the brief were Harold C. Wegner, *1370

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Before RICH, PLAGER, and BRYSON, Circuit Judges.

RICH, Circuit Judge.

Signature Financial Group, Inc. (Signature) appeals from the decision of the United States District Court for the District of Massachusetts granting a motion for summary judgment in favor of State Street Bank & Trust Co. (State Street), finding U.S. Patent No. 5,193,056 (the '056 patent) invalid on the ground that the claimed subject matter is not encompassed by 35 U.S.C. § 101 (1994). See State Street Bank & Trust Co. v. Signature Financial Group, Inc., 927 F.Supp. 502, 38 USPQ2d 1530 (D.Mass.1996). We reverse and remand because we conclude that the patent claims are directed to statutory subject matter.

BACKGROUND

Signature is the assignee of the '056 patent which is entitled "Data Processing System for Hub and Spoke Financial Services Configuration." The '056 patent issued to Signature on 9 March 1993, naming R. Todd Boes as the inventor. The '056 patent is generally directed to a data processing system (the system) for implementing an investment structure which was developed for use in Signature's business as an administrator and accounting agent for mutual funds. In essence, the system, identified by the proprietary name Hub and Spoke®, facilitates a structure whereby mutual funds (Spokes) pool their assets in an investment portfolio (Hub) organized as a partnership. This investment configuration provides the administrator of a mutual fund with the advantageous combination of economies of scale in administering investments coupled with the tax advantages of a partnership.

State Street and Signature are both in the business of acting as custodians and accounting agents for multi-tiered partnership fund financial services. State Street negotiated with Signature for a license to use its patented data processing system described and claimed in the '056 patent. When negotiations broke down, State Street brought a declaratory judgment action asserting invalidity, unenforceability, and noninfringement in Massachusetts district court, and then filed a motion for partial summary judgment of patent invalidity for failure to claim statutory subject matter under § 101. The motion was granted and this appeal followed.

DISCUSSION

[1] [2] [3] KC KC KC On appeal, we are not bound to give deference to the district court's grant of summary judgment, but must make an independent determination that the standards for summary judgment have been met. Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1560, 19 USPQ2d 1111, 1114 (Fed.Cir.1991). Summary judgment is properly granted where there are no genuine issues of material fact and the moving party is entitled to judgment as a matter of law. Fed.R.Civ.P. 56(c). The substantive issue at hand, whether the '056 patent is invalid for failure to claim statutory subject matter under § 101, is a matter of both claim construction and statutory construction. "[W]e review claim construction *de novo* including any allegedly fact-based questions relating to claim construction." Cybor Corp. v. FAS Techs., 138 F.3d 1448, 1451, 46 USPQ2d 1169, 1174 (Fed.Cir.1998) (*in banc*). We also review statutory construction *de novo*. See Romero v. United States, 38 F.3d 1204, 1207 (Fed.Cir.1994). We hold that declaratory judgment plaintiff State Street was not entitled to the grant of summary judgment of invalidity of the '056 patent under § 101 as a matter of law, because the patent claims are directed to statutory subject matter. The following facts pertinent to the statutory subject matter issue are either undisputed or represent the version alleged by the nonmovant. See *1371

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Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986). The patented invention relates generally to a system that allows an administrator to monitor and record the financial information flow and make all calculations necessary for maintaining a partner fund financial services configuration. As previously mentioned, a partner fund financial services configuration essentially allows several mutual funds, or "Spokes," to

pool their investment funds into a single portfolio, or "Hub," allowing for consolidation of, *inter alia*, the costs of administering the fund combined with the tax advantages of a partnership. In particular, this system provides means for a daily allocation of assets for two or more Spokes that are invested in the same Hub. The system determines the percentage share that each Spoke maintains in the Hub, while taking into consideration daily changes both in the value of the Hub's investment securities and in the concomitant amount of each Spoke's assets.

In determining daily changes, the system also allows for the allocation among the Spokes of the Hub's daily income, expenses, and net realized and unrealized gain or loss, calculating each day's total investments based on the concept of a book capital account. This enables the determination of a true asset value of each Spoke and accurate calculation of allocation ratios between or among the Spokes. The system additionally tracks all the relevant data determined on a daily basis for the Hub and each Spoke, so that aggregate year end income, expenses, and capital gain or loss can be determined for accounting and for tax purposes for the Hub and, as a result, for each publicly traded Spoke.

It is essential that these calculations are quickly and accurately performed. In large part this is required because each Spoke sells shares to the public and the price of those shares is substantially based on the Spoke's percentage interest in the portfolio. In some instances, a mutual fund administrator is required to calculate the value of the shares to the nearest penny within as little as an hour and a half after the market closes. Given the complexity of the calculations, a computer or equivalent device is a virtual necessity to perform the task.

The '056 patent application was filed 11 March 1991. It initially contained six "machine" claims, which incorporated means-plus-function clauses, and six method claims. According to Signature, during prosecution the examiner contemplated a § 101 rejection for failure to claim statutory subject matter. However, upon cancellation of the six method claims, the examiner issued a notice of allowance for the remaining present six claims on appeal. Only claim 1 is an independent claim.

KC

[4] The district court began its analysis by construing the claims to be directed to a process, with each "means" clause merely representing a step in that process. However, "machine" claims having "means" clauses may only be reasonably viewed as process claims if there is no supporting structure in the written description that corresponds to the claimed "means" elements. See *In re Alappat*, 33 F.3d 1526, 1540-41, 31 USPQ2d 1545, 1554 (Fed.Cir.1994) (*in banc*). This is not the case now before us.

KC

[5] When independent claim 1 is properly construed in accordance with § 112, ¶ 6, it is directed to a machine, as demonstrated below, where representative claim 1 is set forth, the subject matter in brackets stating the structure the written description discloses as corresponding to the respective "means" recited in the claims.

1. A data processing system for managing a financial services configuration of a portfolio established as a partnership, each partner being one of a plurality of funds, comprising:

- (a) computer processor means [a personal computer including a CPU] for processing data;
- (b) storage means [a data disk] for storing data on a storage medium;
- (c) first means [an arithmetic logic circuit configured to prepare the data disk to magnetically store selected data] for initializing the storage medium;
- (d) second means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases or decreases based on specific input, allocate the results on a percentage basis, and store the output in a *1372

(Cite as: 149 F.3d 1368, *1372)

separate file] for processing data regarding assets in the portfolio and each of the funds from a previous day and data regarding increases or decreases in each of the funds, [sic, funds'] assets and for allocating the percentage share that each fund holds in the portfolio;

(e) third means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file] for processing data regarding daily incremental income, expenses, and net realized gain or loss for the portfolio and for allocating such data among each fund;

(f) fourth means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file] for processing data regarding daily net unrealized gain or loss for the portfolio and for allocating such data among each fund; and

(g) fifth means [an arithmetic logic circuit configured to retrieve information from specific files, calculate that information on an aggregate basis and store the output in a separate file] for processing data regarding aggregate year-end income, expenses, and capital gain or loss for the portfolio and each of the funds.

Each claim component, recited as a "means" plus its function, is to be read, of course, pursuant to § 112, ¶ 6, as inclusive of the "equivalents" of the structures disclosed in the written description portion of the specification. Thus, claim 1, properly construed, claims a machine, namely, a data processing system for managing a financial services configuration of a portfolio established as a partnership, which machine is made up of, at the very least, the specific

structures disclosed in the written description and corresponding to the means-plus-function elements (a)-(g) recited in the claim. A "machine" is proper statutory subject matter under § 101. We note that, for the purposes of a § 101 analysis, it is of little relevance whether claim 1 is directed to a "machine" or a "process," as long as it falls within at least one of the four enumerated categories of patentable subject matter, "machine" and "process" being such categories.

This does not end our analysis, however, because the court concluded that the claimed subject matter fell into one of two alternative judicially-created exceptions to statutory subject matter. [FN1] The court refers to the first exception as the "mathematical algorithm" exception and the second exception as the "business method" exception. Section 101 reads:

FN1. Indeed, although we do not make this determination here, the judicially created exceptions, i.e., abstract ideas, laws of nature, etc., should be applicable to all categories of statutory subject matter, as our own precedent suggests. See *Alappat*, 33 F.3d at 1542, 31 USPQ2d at 1556; see also *In re Johnston*, 502 F.2d 765, 183 USPQ 172 (CCPA 1974) (Rich, J., dissenting).

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The plain and unambiguous meaning of § 101 is that any invention falling within one of the four stated categories of statutory subject matter may be patented, provided it meets the other requirements for patentability set forth in Title 35, i.e., those found in §§ 102, 103, and 112, ¶ 2. [FN2]

FN2. As explained in *In re Bergy*, 596 F.2d 952, 960, 201 USPQ 352, 360 (CCPA 1979) (emphases and footnote omitted):

The first door which must be opened on the difficult path to patentability is § 101 The person approaching that door is an inventor, whether his invention is patentable or not Being an inventor or having an invention, however, is no guarantee of opening even the first door. What kind of an invention or discovery is it? In dealing with the question of kind, as distinguished from the qualitative conditions which make the invention patentable, § 101 is broad and general; its language is: "any * * * process, machine, manufacture, or composition of matter, or any * * * improvement thereof." Section 100(b) further expands "process" to include "art or method, and * * * a new use of a known process, machine, manufacture, composition of matter, or material." If the invention, as the inventor defines it in his claims (pursuant to § 112, second paragraph), falls into any one of the named categories, he is allowed to pass through to the second door, which is § 102; "novelty and loss of right to patent" is the sign on it. Notwithstanding the words "new and useful" in § 101, the invention is not examined under that statute for novelty because that is not the statutory scheme of things or the long-

established administrative practice.

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(Cite as: 149 F.3d 1368, *1373) —————

[6]  The repetitive use of the expansive term "any" in § 101 shows Congress's intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in § 101. Indeed, the Supreme Court has acknowledged that Congress intended § 101 to extend to "anything under the sun that is made by man." *Diamond v. Chakrabarty*, 447 U.S. 303, 309, 100 S.Ct. 2204, 65 L.Ed.2d 144 (1980); see also *Diamond v. Diehr*, 450 U.S. 175, 182, 101 S.Ct. 1048, 67 L.Ed.2d 155 (1981). [FN3] Thus, it is improper to read limitations into § 101 on the subject matter that may be patented where the legislative history indicates that Congress clearly did not intend such limitations. See *Chakrabarty*, 447 U.S. at 308, 100 S.Ct. 2204 ("We have also cautioned that courts 'should not read into the patent laws limitations and conditions which the legislature has not expressed.' " (citations omitted)).

FN3. The Committee Reports accompanying the 1952 Act inform us that Congress intended statutory

subject matter to "include anything under the sun that is made by man." S. Rep. No. 82-1979 at 5 (1952); H.R. Rep. No. 82-1923 at 6 (1952).

The "Mathematical Algorithm" Exception

The Supreme Court has identified three categories of subject matter that are unpatentable, namely "laws of nature, natural phenomena, and abstract ideas." Diehr, 450 U.S. at 185, 101 S.Ct. 1048. Of particular relevance to this case, the Court has held that mathematical algorithms are not patentable subject matter to the extent that they are merely abstract ideas. See Diehr, 450 U.S. 175, 101 S.Ct. 1048, passim; Parker v. Flook, 437 U.S. 584, 98 S.Ct. 2522, 57 L.Ed.2d 451 (1978); Gottschalk v. Benson, 409 U.S. 63, 93 S.Ct. 253, 34 L.Ed.2d 273 (1972). In Diehr, the Court explained that certain types of mathematical subject matter, standing alone, represent nothing more than abstract ideas until reduced to some type of practical application, i.e., "a useful, concrete and tangible result." Alappat, 33 F.3d at 1544, 31 USPQ2d at 1557. [FN4]

[FN4] This has come to be known as the mathematical algorithm exception. This designation has led to some confusion, especially given the Freeman-Walter-Abele analysis. By keeping in mind that the mathematical algorithm is unpatentable only to the extent that it represents an abstract idea, this confusion may be ameliorated.



[7] Unpatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting disembodied concepts or truths that are not "useful." From a practical standpoint, this means that to be patentable an algorithm must be applied in a "useful" way. In Alappat, we held that data, transformed by a machine through a series of mathematical calculations to produce a smooth waveform display on a rasterizer monitor, constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it produced "a useful, concrete and tangible result"--the smooth waveform.

Similarly, in Arrhythmia Research Technology Inc. v. Corazonix Corp., 958 F.2d 1053, 22 USPQ2d 1033 (Fed.Cir.1992), we held that the transformation of electrocardiograph signals from a patient's heartbeat by a machine through a series of mathematical calculations constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it corresponded to a useful, concrete or tangible thing--the condition of a patient's heart.



[8] Today, we hold that the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces "a useful, concrete and tangible result"--a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.

The district court erred by applying the Freeman-Walter-Abele test to determine whether the claimed subject matter was an unpatentable abstract idea. The Freeman-Walter-Abele test was designed by the Court ***1374**

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of Customs and Patent Appeals, and subsequently adopted by this court, to extract and identify unpatentable mathematical algorithms in the aftermath of Benson and Flook. See In re Freeman, 573 F.2d 1237, 197 USPQ 464 (CCPA 1978) as modified by In re Walter, 618 F.2d 758, 205 USPQ 397 (CCPA 1980). The test has been thus articulated:

First, the claim is analyzed to determine whether a mathematical algorithm is directly or indirectly recited. Next, if a mathematical algorithm is found, the claim as a whole is further analyzed to determine whether the algorithm is "applied in any manner to physical elements or process steps," and, if it is, it "passes muster under § 101." In re Pardo, 684 F.2d 912, 915, 214 USPQ 673, 675-76 (CCPA 1982) (citing In re Abele, 684 F.2d 902, 214 USPQ 682 (CCPA 1982)). [FN5]

[FN5] The test has been the source of much confusion. In In re Abele, 684 F.2d 902, 214 USPQ 682 (CCPA 1982), the CCPA upheld claims applying "a mathematical formula within the context of a process which encompasses significantly more than the algorithm alone." Id. at 909.

Thus, the CCPA apparently inserted an additional consideration--the significance of additions to the algorithm. The CCPA appeared to abandon the application of the test in In re Taner, 681 F.2d 787, 214

USPQ 678 (CCPA 1982), only to subsequently "clarify" that the Freeman-Walter-Abele test was simply not the exclusive test for detecting unpatentable subject matter. In re Meyer, 688 F.2d 789, 796, 215 USPQ 193, 199 (CCPA 1982).

[9] After *Diehr* and *Chakrabarty*, the Freeman-Walter-Abele test has little, if any, applicability to determining the presence of statutory subject matter. As we pointed out in *Alappat*, 33 F.3d at 1543, 31 USPQ2d at 1557, application of the test could be misleading, because a process, machine, manufacture, or composition of matter employing a law of nature, natural phenomenon, or abstract idea is patentable subject matter even though a law of nature, natural phenomenon, or abstract idea would not, by itself, be entitled to such protection. [FN6] The test determines the presence of, for example, an algorithm. Under *Benson*, this may have been a sufficient indicium of nonstatutory subject matter. However, after *Diehr* and *Alappat*, the mere fact that a claimed invention involves inputting numbers, calculating numbers, outputting numbers, and storing numbers, in and of itself, would not render it nonstatutory subject matter, unless, of course, its operation does not produce a "useful, concrete and tangible result." *Alappat*, 33 F.3d at 1544, 31 USPQ2d at 1557. [FN7] After all, as we have repeatedly stated,

FN6. See e.g. *Parker v. Flook*, 437 U.S. 584, 590, 98 S.Ct. 2522, 57 L.Ed.2d 451 (1978) ("[A] process is not unpatentable simply because it contains a law of nature or a mathematical algorithm."); *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130, 68 S.Ct. 440, 92 L.Ed. 588 (1948) ("He who discovers a hitherto unknown phenomenon of nature has no claim to a monopoly of it which the law recognizes. If there is to be invention from such a discovery, it must come from the application of the law to a new and useful end."); *Mackay Radio & Tel. Co. v. Radio Corp. of Am.*, 306 U.S. 86, 94, 59 S.Ct. 427, 83 L.Ed. 506 (1939) ("While a scientific truth, or the mathematical expression of it, is not a patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be.").

[W]hen a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect (e.g., transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of § 101.

Diehr, 450 U.S. at 192, 101 S.Ct. 1048; see also In re Iwahashi, 888 F.2d 1370, 1375, 12 USPQ2d 1908, 1911 (Fed.Cir.1989); Taner, 681 F.2d

at 789, 214 USPQ at 680. The dispositive inquiry is whether the claim as a whole is directed to statutory subject matter. It is irrelevant that a claim may contain, as part of the whole, subject matter which would not be patentable by itself. "A claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula, computer program or digital computer." *Diehr*, 450 U.S. at 187, 101 S.Ct. 1048.

FN7. As the Supreme Court expressly stated in *Diehr*, its own holdings in *Benson* and *Flook* "stand for no more than these long-established principles" that abstract ideas and natural phenomena are not patentable. *Diehr*, 450 U.S. at 185, 101 S.Ct. 1048 (citing *Chakrabarty*, 447 U.S. at 309, 100 S.Ct. 2204 and *Funk Bros.*, 333 U.S. at 130, 68 S.Ct. 440.).

every step-by-step process, be it electronic or chemical or mechanical, involves an algorithm in the broad sense of the term. Since § 101 expressly includes processes as a category of inventions which may be patented and § 100(b) further defines the word "process" as meaning "process, art or *1375

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method, and includes a new use of a known process, machine, manufacture, composition of matter, or material," it

follows that it is no ground for holding a claim is directed to nonstatutory subject matter to say it includes or is directed to an algorithm. This is why the proscription against patenting has been limited to *mathematical* algorithms....

In re Iwahashi, 888 F.2d 1370, 1374, 12 USPQ2d 1908, 1911 (Fed.Cir.1989) (emphasis in the original). [FN8]

FN8. In In re Pardo, 684 F.2d 912 (CCPA 1982), the CCPA narrowly limited "mathematical algorithm" to the execution of formulas with given data. In the same year, in In re Meyer, 688 F.2d 789, 215 USPQ 193 (CCPA 1982), the CCPA interpreted the same term to include any mental process that can be represented by a mathematical algorithm. This is also the position taken by the PTO in its Examination Guidelines, 61 Fed.Reg. 7478, 7483 (1996).

KC

[10] The question of whether a claim encompasses statutory subject matter should not focus on *which* of the four categories of subject matter a claim is directed to [FN9]--process, machine, manufacture, or composition of matter--but rather on the essential characteristics of the subject matter, in particular, its practical utility. Section 101 specifies that statutory subject matter must also satisfy the other "conditions and requirements" of Title 35, including novelty, nonobviousness, and adequacy of disclosure and notice. See In re Warmerdam, 33 F.3d 1354, 1359, 31 USPQ2d 1754, 1757-58 (Fed.Cir.1994). For purpose of our analysis, as noted above, claim 1 is directed to a machine programmed with the Hub and Spoke software and admittedly produces a "useful, concrete, and tangible result." Alappat, 33 F.3d at 1544, 31 USPQ2d at 1557. This renders it statutory subject matter, even if the useful result is expressed in numbers, such as price, profit, percentage, cost, or loss.

FN9. Of course, the subject matter must fall into at least one category of statutory subject matter.

The Business Method Exception

KC

[11] As an alternative ground for invalidating the '056 patent under § 101, the court relied on the judicially-created, so-called "business method" exception to statutory subject matter. We take this opportunity to lay this ill-conceived exception to rest. Since its inception, the "business method" exception has merely represented the application of some general, but no longer applicable legal principle, perhaps arising out of the "requirement for invention"--which was eliminated by § 103. Since the 1952 Patent Act, business methods have been, and should have been, subject to the same legal requirements for patentability as applied to any other process or method. [FN10]

FN10. As Judge Newman has previously stated,

[The business method exception] is ... an unwarranted encumbrance to the definition of statutory subject matter in section 101, that [should] be discarded as error-prone, redundant, and obsolete. It merits retirement from the glossary of section 101.... All of the "doing business" cases could have been decided using the clearer concepts of Title 35. Patentability does not turn on whether the claimed method does "business" instead of something else, but on whether the method, viewed as a whole, meets the requirements of patentability as set forth in Sections 102, 103, and 112 of the Patent Act.

In re Schrader, 22 F.3d 290, 298, 30 USPQ2d 1455, 1462 (Fed.Cir.1994) (Newman, J., dissenting).

The business method exception has never been invoked by this court, or the CCPA, to deem an invention unpatentable. [FN11] Application of this particular exception has always been preceded by a ruling based on some clearer concept of Title 35 or, more commonly, application of the abstract idea exception based on finding a mathematical algorithm. Illustrative is the CCPA's analysis in In re Howard, 55 C.C.P.A. 1121, 394 F.2d 869, 157 USPQ 615 (CCPA 1968), wherein the court affirmed the Board of Appeals' rejection of the claims for lack of novelty and found it unnecessary to reach the Board's section 101 ground that a method of doing business is "inherently

unpatentable." *Id.* at 872, 55 C.C.P.A. 1121, 394 F.2d 869, 157 USPQ at 617. [FN12]

FN11. See Rinaldo Del Gallo, III, *Are "Methods of Doing Business" Finally out of Business as a Statutory Rejection?*, 38 IDEA 403, 435 (1998).

FN12. See also *Dann v. Johnston*, 425 U.S. 219, 96 S.Ct. 1393, 47 L.Ed.2d 692 (1976) (the Supreme Court declined to discuss the section 101 argument concerning the computerized financial record-keeping system, in view of the Court's holding of patent invalidity under section 103); *In re Chatfield*, 545 F.2d 152, 157, 191 USPQ 730, 735 (CCPA 1976); *Ex parte Murray*, 9 USPQ2d 1819, 1820 (Bd.Pat.App & Interf. 1988) ("[T]he claimed accounting method [requires] no more than the entering, sorting, debiting and totaling of expenditures as necessary preliminary steps to issuing an expense analysis statement") states grounds of obviousness or lack of novelty, not of non-statutory subject matter.

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Similarly, *In re Schrader*, 22 F.3d 290, 30 USPQ2d 1455 (Fed.Cir.1994), while making reference to the business method exception, turned on the fact that the claims implicitly recited an abstract idea in the form of a mathematical algorithm and there was no "transformation or conversion of subject matter representative of or constituting physical activity or objects." 22 F.3d at 294, 30 USPQ2d at 1459 (emphasis omitted). [FN13]

FN13. Any historical distinctions between a method of "doing" business and the means of carrying it out blur in the complexity of modern business systems. See *Paine, Webber, Jackson & Curtis v. Merrill Lynch*, 564 F.Supp. 1358, 218 USPQ 212 (D.Del.1983), (holding a computerized system of cash management was held to be statutory subject matter.)

State Street argues that we acknowledged the validity of the business method exception in *Alappat* when we discussed *Maucorps* and *Meyer*:

Maucorps dealt with a business methodology for deciding how salesmen should best handle respective customers and *Meyer* involved a "system" for aiding a neurologist in diagnosing patients. Clearly, neither of the alleged "inventions" in those cases falls within any § 101 category.

Alappat, 33 F.3d at 1541, 31 USPQ2d at 1555. However, closer scrutiny of these cases reveals that the claimed inventions in both *Maucorps* and *Meyer* were rejected as abstract ideas under the mathematical algorithm exception, not the business method exception. See *In re Maucorps*, 609 F.2d 481, 484, 203 USPQ 812, 816 (CCPA 1979); *In re Meyer*, 688 F.2d 789, 796, 215 USPQ 193, 199 (CCPA 1982). [FN14]

FN14. Moreover, these cases were subject to the *Benson* era Freeman-Walter-Abele test--in other words, analysis as it existed before *Diehr* and *Alappat*.

Even the case frequently cited as establishing the business method exception to statutory subject matter, *Hotel Security Checking Co. v. Lorraine Co.*, 160 F. 467 (2d Cir.1908), did not rely on the exception to strike the patent. [FN15] In that case, the patent was found invalid for lack of novelty and "invention," not because it was improper subject matter for a patent. The court stated "the fundamental principle of the system is as old as the art of bookkeeping, i.e., charging the goods of the employer to the agent who takes them." *Id.* at 469. "If at the time of [the patent] application, there had been no system of bookkeeping of any kind in restaurants, we would be confronted with the question whether a new and useful system of cash registering and account checking is such an art as is patentable under the statute." *Id.* at 472.

FN15. See also *Loew's Drive-in Theatres v. Park-in Theatres*, 174 F.2d 547, 552 (1st Cir.1949) (holding that the means for carrying out the system of transacting business lacked "an exercise of the faculty of invention"); *In re Patton*, 29 C.C.P.A. 982, 127 F.2d 324, 327-28 (CCPA 1942) (finding claims invalid as

failing to define patentable subject matter over the references of record.); *Berardini v. Tocci*, 190 F. 329, 332 (C.C.S.D.N.Y.1911); *In re Wait*, 22 C.C.P.A. 822, 73 F.2d 982, 983 (CCPA 1934) ("[S]urely these are, and always have been, essential steps in all dealings of this nature, and even conceding, without holding, that some methods of doing business might present patentable novelty, we think such novelty is lacking here."); *In re Howard*, 55 C.C.P.A. 1121, 394 F.2d 869, 157 USPQ 615, 617 (CCPA 1968) ("[W]e therefore affirm the decision of the Board of Appeals on the ground that the claims do not define a novel process [so we find it] unnecessary to consider the issue of whether a method of doing business is inherently unpatentable."). Although a clearer statement was made in *In re Patton*, 29 C.C.P.A. 982, 127 F.2d 324, 327, 53 USPQ 376, 379 (CCPA 1942) that a system for transacting business, separate from the means for carrying out the system, is not patentable subject matter, the jurisprudence does not require the creation of a distinct business class of unpatentable subject matter.

This case is no exception. The district court announced the precepts of the business method exception as set forth in several treatises, but noted as its primary reason for finding the patent invalid under the business method exception as follows:

If Signature's invention were patentable, any financial institution desirous of implementing a multi-tiered funding complex modelled (sic) on a Hub and Spoke configuration would be required to seek Signature's permission before embarking on *1377

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such a project. *This is so because the '056 Patent is claimed [sic] sufficiently broadly to foreclose virtually any computer-implemented accounting method necessary to manage this type of financial structure.*

927 F.Supp. 502, 516, 38 USPQ2d 1530, 1542 (emphasis added). Whether the patent's claims are too broad to be patentable is not to be judged under § 101, but rather under §§ 102, 103 and 112. Assuming the above statement to be correct, it has nothing to do with whether what is claimed is statutory subject matter.

In view of this background, it comes as no surprise that in the most recent edition of the Manual of Patent Examining Procedures (MPEP) (1996), a paragraph of § 706.03(a) was deleted. In past editions it read:

Though seemingly within the category of process or method, a method of doing business can be rejected as not being within the statutory classes. See *Hotel Security Checking Co. v. Lorraine Co.*, 160 F. 467 (2nd Cir.1908) and *In re Wait*, 24 USPQ 88, 22 C.C.P.A. 822, 73 F.2d 982 (1934).

MPEP § 706.03(a) (1994). This acknowledgment is buttressed by the U.S. Patent and Trademark 1996 Examination Guidelines for Computer Related Inventions which now read:

Office personnel have had difficulty in properly treating claims directed to methods of doing business. Claims should not be categorized as methods of doing business. Instead such claims should be treated like any other process claims.

Examination Guidelines, 61 Fed.Reg. 7478, 7479 (1996). We agree that this is precisely the manner in which this type of claim should be treated. Whether the claims are directed to subject matter within § 101 should not turn on whether the claimed subject matter does "business" instead of something else.

CONCLUSION

The appealed decision is reversed and the case is remanded to the district court for further proceedings consistent with this opinion.

REVERSED and REMANDED.

C.A.Fed. (Mass.),1998.

State Street Bank & Trust Co. v. Signature Financial Group, Inc.

149 F.3d 1368, 47 U.S.P.Q.2d 1596

Briefs and Other Related Documents [\(Back to top\)](#)

- [1996 WL 33419516](#) (Appellate Brief) Reply Brief for Appellant Signature Financial Group, Inc. (Nov. 04, 1996) [Original Image of this Document with Appendix \(PDF\)](#)
- [1996 WL 33419513](#) (Appellate Brief) Brief of Appellee State Street Bank and Trust Co. (Oct. 07, 1996) [Original Image of this Document with Appendix \(PDF\)](#)
- [1996 WL 33419514](#) (Appellate Brief) Brief of Amicus Curiae Visa International Service Association and Mastercard International Incorporated Urging Affirmance of the Judgment Under Review in State Street Bank & Trust Co. v. Signature Financial Group, Inc. (Oct. 07, 1996) [Original Image of this Document \(PDF\)](#)
- [1996 WL 33419512](#) (Appellate Brief) Brief for Appellant Signature Financial Group, Inc. (Jul. 22, 1996) [Original Image of this Document with Appendix \(PDF\)](#)
- [1996 WL 33419515](#) (Appellate Brief) Brief of Amicus Curiae Information Technology Industry Council in Support of

Defendant-Appellant Signature Financial Group, Inc. (Jul. 22, 1996)[Original Image of this Document \(PDF\)](#)

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(Cite as: 346 F.3d 1057)

346 F.3d 1057, 68 U.S.P.Q.2d 1481

Briefs and Other Related Documents

United States Court of Appeals,
Federal Circuit.

STATE CONTRACTING & ENGINEERING CORPORATION, Plaintiff-Appellant,
v.

CONDOTTE AMERICA, INC. (formerly known as Recchi America, Inc.), The Murphy
Construction Company, The Hardaway Company, Hubbard Construction Company,
Balfour Beatty Construction, Inc., Community Asphalt Corporation, And Hanson
Pipe & Products Southeast, Inc. (formerly known as Joelson Concrete Pipe
Company, Inc.), Defendants-Cross Appellants.

Nos. 02-1588, 02-1589, 03-1008.

DECIDED: Oct. 7, 2003.

After remand, 258 F.3d 1329, of highway construction company's suit against competitors for infringement of patents related to formation of integrated column and pile, the United States District Court for the Southern District of Florida, William P. Dimitrouleas, J., found non-willful infringement. Cross-appeals were taken. The Court of Appeals, Bryson, Circuit Judge, held that: (1) plaintiff had standing to sue; (2) infringement was not willful; (3) suit was not barred by laches; (4) patent was not invalid as anticipated; (5) fact issue existed as to whether patent was invalid as obvious; and (6) evidence supported damage award.

Affirmed in part, reversed in part, and remanded.

West Headnotes

[1] KeyCite Notes◆ 291 Patents◆ 291X Title, Conveyances, and Contracts◆ 291X(B) Assignments and Other Transfers◆ 291k202 Construction and Operation of Assignments and Grants◆ 291k202(1) k. In General. Most Cited Cases◆ 291 Patents KeyCite Notes◆ 291X Title, Conveyances, and Contracts◆ 291X(C) Licenses and Contracts◆ 291k211 Construction and Operation of Licenses◆ 291k211(1) k. In General. Most Cited Cases[2] KeyCite Notes◆ 291 Patents◆ 291X Title, Conveyances, and Contracts◆ 291X(B) Assignments and Other Transfers◆ 291k196 Requisites and Validity of Assignments and Grants◆ 291k196.1 k. In General. Most Cited Cases

Party that has been granted all substantial rights under patent is considered owner, regardless of how parties characterize transaction that conveyed those rights.

 [3] KeyCite Notes

- ☞ 291 Patents
- ☞ 291XII Infringement
- ☞ 291XII(C) Suits in Equity
- ☞ 291k286 k. Persons Entitled to Sue. Most Cited Cases

Contract transferring "entire right title and interest in" patents, including right to sue for "past and present" infringement, was sufficient to give assignee standing to sue for subsequent infringement; there was no implied retention by transferor of right to sue for future infringement.

 [4] KeyCite Notes

- ☞ 291 Patents
- ☞ 291XII Infringement
- ☞ 291XII(C) Suits in Equity
- ☞ 291k312 Evidence
- ☞ 291k312(3) Weight and Sufficiency
- ☞ 291k312(8) k. Participation, Intent, and Contributory Infringement. Most Cited Cases

To establish willful patent infringement, plaintiff must prove by clear and convincing evidence that defendant acted without reasonable belief that its action avoided infringement.

 [5] KeyCite Notes

- ☞ 291 Patents
- ☞ 291XII Infringement
- ☞ 291XII(A) What Constitutes Infringement
- ☞ 291k227 k. Intent or Purpose, and Knowledge. Most Cited Cases

State highway construction contractors' practice of competitor's patented technique for forming integrated columns and piles, under reasonable but erroneous belief that competitor had granted state implied license, precluded finding that infringement was willful, even though contractors never obtained advice of counsel; state had specifically represented to contractors that it had license to practice invention. 35 U.S.C.A. §§ 284, 285.

 [6] KeyCite Notes

- ☞ 150 Equity
- ☞ 150II Laches and Stale Demands
- ☞ 150k68 Grounds and Essentials of Bar
- ☞ 150k72 Prejudice from Delay in General
- ☞ 150k72(1) k. In General. Most Cited Cases

To successfully invoke laches, defendant must prove that plaintiff delayed filing suit unreasonable and inexcusable length of time after plaintiff knew or reasonably should have known of its claim against defendant, and that delay resulted in material prejudice to defendant.

 [7] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k289 Time to Sue

291k289(2) Laches

291k289(2.1) k. In General. Most Cited Cases

Economic prejudice arises, for purpose of applying laches defense in patent infringement action, when alleged infringer suffers loss of monetary investments or incurs damages that likely would have been prevented by earlier suit; nexus must be shown between patentee's delay in filing suit and expenditures, i.e., alleged infringer must change his position because of and as result of delay.



[8] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k289 Time to Sue

291k289(2) Laches

291k289(2.1) k. In General. Most Cited Cases

Highway construction contractors were not prejudiced by competitor's delay in asserting patent, and thus competitor's infringement action was not barred by laches; there was no evidence that earlier filing would have led contractors to alter their behavior or avoid incurring certain expenses.



[9] KeyCite Notes

291 Patents

291IV Applications and Proceedings Thereon

291k112 Conclusiveness and Effect of Decisions of Patent Office

291k112.5 k. Sufficiency of Evidence to Offset Effect of Decision in General. Most Cited Cases

Party seeking to establish that particular patent claims are invalid must overcome statutory presumption of validity by clear and convincing evidence. 35 U.S.C.A. § 282.



[10] KeyCite Notes

170B Federal Courts

170BVIII Courts of Appeals

170BVIII(K) Scope, Standards, and Extent

170BVIII(K)1 In General

170Bk768 Interlocutory, Collateral and Supplementary Proceedings and Questions

170Bk769 k. On Appeal from Final Judgment. Most Cited Cases

Denial of pretrial motion for summary judgment is not reviewable on appeal from final judgment.



[11] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k314 Hearing

291k314(6) k. Findings and Determination. Most Cited Cases

It is incumbent upon court to set forth its construction of disputed patent claim terms prior to ruling on validity, or at least to explain why resolution of claim construction will not impact its ruling.

 [12] KeyCite Notes

- ⌚ [291 Patents](#)
- ⌚ [291II Patentability](#)
- ⌚ [291II\(D\) Anticipation](#)
- ⌚ [291k63 Prior Patents](#)
- ⌚ [291k66 Operation and Effect](#)
- ⌚ [291k66\(1.1\) k. Nonanalogous Arts. Most Cited Cases](#)

Question whether prior art reference is analogous art is irrelevant to whether that reference anticipates patent. [35 U.S.C.A. § 102\(b\)](#).

 [13] KeyCite Notes

- ⌚ [291 Patents](#)
- ⌚ [291II Patentability](#)
- ⌚ [291II\(D\) Anticipation](#)
- ⌚ [291k63 Prior Patents](#)
- ⌚ [291k66 Operation and Effect](#)
- ⌚ [291k66\(1.10\) k. Building and Paving Materials, and Methods. Most Cited Cases](#)

Patent for forming integrated cement column and pile, calling for insertion of exposed portions of column's reinforcing bars into cementitious slurry, was not anticipated by prior art reference that called for pouring of cementitious slurry over starter bars after they were already in hole. [35 U.S.C.A. § 102\(b\)](#).

 [14] KeyCite Notes

- ⌚ [291 Patents](#)
- ⌚ [291II Patentability](#)
- ⌚ [291II\(A\) Invention; Obviousness](#)
- ⌚ [291k16 Invention and Obviousness in General](#)
- ⌚ [291k16\(2\) k. Prior Art in General. Most Cited Cases](#)

 [291 Patents KeyCite Notes]

- ⌚ [291II Patentability](#)
- ⌚ [291II\(A\) Invention; Obviousness](#)
- ⌚ [291k16 Invention and Obviousness in General](#)
- ⌚ [291k16\(3\) k. View of Person Skilled in Art: Most Cited Cases](#)

 [291 Patents KeyCite Notes]

- ⌚ [291II Patentability](#)
- ⌚ [291II\(A\) Invention; Obviousness](#)
- ⌚ [291k16.13 k. Fact Questions. Most Cited Cases](#)

 [291 Patents KeyCite Notes]

- ⌚ [291II Patentability](#)
- ⌚ [291II\(A\) Invention; Obviousness](#)
- ⌚ [291k36 Weight and Sufficiency](#)

↳ 291k36.1 Secondary Factors Affecting Invention or Obviousness
 ↳ 291k36.1(1) k. In General. Most Cited Cases



↳ 291 Patents KeyCite Notes

↳ 291II Patentability

↳ 291II(A) Invention; Obviousness

↳ 291k36 Weight and Sufficiency

↳ 291k36.2 Commercial Success

↳ 291k36.2(1) k. In General. Most Cited Cases

Whether patent claim is invalid for obviousness is legal conclusion that is based on underlying factual inquiries into scope and content of prior art, differences between claimed invention and prior art, level of ordinary skill in art, and objective evidence of nonobviousness, including commercial success, copying, and long-felt need. 35 U.S.C.A. § 103.



[15] KeyCite Notes

↳ 291 Patents

↳ 291XII Infringement

↳ 291XII(C) Suits in Equity

↳ 291k314 Hearing

↳ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

Whether prior art reference is analogous, for purpose of determining patent validity, is question of fact.



[16] KeyCite Notes

↳ 291 Patents

↳ 291II Patentability

↳ 291II(D) Anticipation

↳ 291k63 Prior Patents

↳ 291k66 Operation and Effect

↳ 291k66(1.1) k. Nonanalogous Arts. Most Cited Cases

Prior art reference is analogous, for purpose of determining patent validity, if it is from same field of endeavor as invention or, if outside inventor's field of endeavor, is nevertheless reasonably pertinent to particular problem with which inventor is involved.



[17] KeyCite Notes

↳ 291 Patents

↳ 291XII Infringement

↳ 291XII(C) Suits in Equity

↳ 291k323 Final Judgment or Decree

↳ 291k323.2 Summary Judgment

↳ 291k323.2(3) k. Particular Cases. Most Cited Cases

Issue of material fact as to whether asserted prior art reference was analogous art precluded summary judgment on claim that patents for forming integrated cement column and pile were invalid as obvious. 35 U.S.C.A. § 103.



[18] KeyCite Notes

↳ 291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k323 Final Judgment or Decree

291k323.2 Summary Judgment

291k323.2(3) k. Particular Cases. Most Cited Cases

Issues of material fact as to scope of prior art references, differences between them and claimed invention, and whether there was motive to combine their teachings precluded summary judgment on claim that patents for forming integrated cement column and pile were invalid as obvious. 35 U.S.C.A. § 103.



[19] KeyCite Notes

170B Federal Courts

170BVIII Courts of Appeals

170BVIII(K) Scope, Standards, and Extent

170BVIII(K)5 Questions of Fact, Verdicts and Findings

170Bk870 Particular Issues and Questions

170Bk871 k. Damages and Extent of Relief. Most Cited Cases

Jury's decision with respect to award of damages must be upheld unless amount is grossly excessive or monstrous, clearly not supported by evidence, or based only on speculation or guesswork.



[20] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k312 Evidence

291k312(3) Weight and Sufficiency

291k312(10) k. Profits and Damages. Most Cited Cases

"Reasonable royalty" damage award to prevailing patent infringement plaintiff was supported by evidence, though plaintiff's expert used defendants' actual profit margins in his calculation; actual profit was relevant to expert's determination of what royalty rate would have been in hypothetical negotiation.



[21] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k319 Damages

291k319(1) k. In General. Most Cited Cases

"Reasonable royalty" damage award to prevailing patent infringement plaintiff was not grossly excessive, though rate was higher than settlement amount initially requested by plaintiff's predecessor in interest; rate was lower than hypothetical royalty predicted by plaintiff's expert.



[22] KeyCite Notes

157 Evidence

157XII Opinion Evidence

157XII(C) Competency of Experts

157k543.5 k. Damages. Most Cited Cases

Exclusion of expert testimony on issue of reasonable royalty rate damages, proffered by defendant found to have infringed patents for forming integrated cement columns and piles, was not abuse of discretion, after expert had conceded that he had no experience in placing value on patent and did not have any knowledge regarding reasonable royalties for construction-related patents. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

 [23] KeyCite Notes

↳ 291 Patents

↳ 291XII Infringement

↳ 291XII(C) Suits in Equity

↳ 291k319 Damages

↳ 291k319(1) k. In General. Most Cited Cases

Damages for infringement of method patent begin to accrue from date of patent's issuance, regardless of whether defendant has notice of pending or actual issuance.

 [24] KeyCite Notes

↳ 291 Patents

↳ 291XII Infringement

↳ 291XII(C) Suits in Equity

↳ 291k314 Hearing

↳ 291k314(1) k. In General. Most Cited Cases

Jury instruction, on issue of damages for infringement of patents for forming integrated cement columns and piles, adequately protected defendants from being assessed for convoyed sales; jury was instructed not to consider entire construction job unless it found entire job to be functionally part of patented inventions used on job.

 KeyCite Notes

↳ 291 Patents

↳ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents

↳ 291k328 Patents Enumerated

↳ 291k328(2) k. Original Utility. Most Cited Cases

3,654,767. Cited as Prior Art.

 KeyCite Notes

↳ 291 Patents

↳ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents

↳ 291k328 Patents Enumerated

↳ 291k328(2) k. Original Utility. Most Cited Cases

5,234,288, 5,429,455. Infringed.

*1060

(Cite as: 346 F.3d 1057, *1060)

Richard S. Ross, of Ft. Lauderdale, Florida, argued for plaintiff-appellant. Of counsel on the brief was John H. Faro, Faro & Associates, of Miami, Florida.

Stefan V. Stein and Steven L. Brannock, Holland & Knight LLP, of Tampa, Florida, argued for defendants-cross appellants. With them on the brief was Harvey S. Kauget.

Before MICHEL, BRYSON, and DYK, Circuit Judges.

BRYSON, Circuit Judge.

State Contracting & Engineering Corporation ("State Contracting") sued the State of Florida and a number of private contractors in the United States District Court for the Southern District of Florida, charging them with patent infringement. The State was dismissed from the case, and after an appeal to this court and a jury trial on remand, the district court entered judgment for State Contracting. Although it obtained an award of damages, State Contracting has appealed the district court's ruling that the contractors' infringement was not willful. For their part, the contractors have appealed from the judgment on a number of grounds, including State Contracting's standing to assert infringement of the two patents-in-suit, the district court's rejection of the contractors' defenses of laches and patent invalidity, and the jury's award of reasonable royalty damages. We uphold most of the district court's rulings, but reverse and remand for further proceedings on the issue of obviousness.

I. Background

This action stems from work done under a contract in which State Paving Corporation ("State Paving") constructed a set of sound barrier walls for the Florida Department of Transportation ("FDOT"). Sound barrier walls serve to reduce the level of highway noise reaching surrounding neighborhoods. During the construction, State Paving submitted a Value Engineering Change Proposal ("VECP") for a new integrated column and pile design to be used to support the sound barrier walls. FDOT accepted the proposal and incorporated it into the specifications for the project. In accordance with the VECP contract, FDOT paid State Paving half of the cost savings realized from the use of the VECP in the project.

Subsequently, State Paving applied for and was issued two patents related to the subject matter of the VECP: U.S. Patent No. 5,234,288 ("the '288 patent") and U.S. Patent No. 5,429,455 ("the '455 patent"). The '288 patent contains method claims directed to the formation of an integrated column and pile for use in building structures in sandy soil. Claim 1 of the '288 patent, the only independent claim, provides:

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(Cite as: 346 F.3d 1057, *1061)

A method of forming a ground-supported column or post, comprising the steps of providing a ground situs of suitable depth and width, filling said situs with a cementitious slurry, providing a reinforced, precast concrete member whose reinforcing bars extend out of the bottom of said member a substantial length beyond said bottom to form an exposed portion, inserting said exposed portion into said slurry until said member merges with said slurry, and permitting said slurry to harden, thus providing an integral column and pile set in the ground.

'288 patent, col. 4, ll. 2-12. Dependent claim 2 adds the limitation of using auger casting for the ground situs and slurry, while dependent claim 3 adds the use of falsework to keep the concrete member in position while the slurry hardens. *Id.*, col. 4, ll. 13-19. According to the written description, an auger rotates to cut through the soil and create the hole. Cementitious material can then be pumped through the central channel of the auger so that when a retaining means or valve in the auger is opened, the cementitious material fills the hole. *Id.*, col. 1, l. 61, to col. 2, l. 4.

The '455 patent contains three apparatus claims. Claim 1 is representative:

A precise reinforced concrete member containing reinforcing bars which have exposed portions extending beyond one end of the member and parallel to the longitudinal dimension of the member; the number, size and length of such exposed portions being such as to provide sufficient strength when the end of said concrete member is merged with and the bars inserted into a foundation pile of initially wet, cementitious material, which material is then allowed to set; said exposed portions being further characterized in being completely surrounded by said cementitious material; said concrete member and said pile being merged without mechanical attachment.

'455 patent, col. 3, l. 23, to col. 4, l. 3.

On May 9, 1997, State Paving entered into an agreement to transfer the invention disclosed in the two patents to State Contracting. State Contracting then sued FDOT and several highway construction contractors for infringement of the two patents. State Contracting alleged that FDOT had improperly incorporated the VECP into subsequent requests for bids and that the contractors had then infringed the patents when they carried out the construction contracts that resulted from those bids. The district court granted the defendants' motions for summary judgment with respect to State Contracting's claims of patent infringement, holding that, when it executed the VECP contract, State Paving had granted FDOT a license that authorized FDOT and its contractors to practice the asserted patents. On State Contracting's appeal, we affirmed the district court's ruling in favor of FDOT, but we held that the district court had erred in granting summary judgment to the private contractors on the patent infringement claims. State Contracting & Eng'g Corp. v. Florida, 258 F.3d 1329, 1340 (Fed.Cir.2001). We held that the VECP contract did not grant FDOT a license to practice the patents in future soundwall construction projects.

After the case was remanded to the district court, the contractors filed a motion to dismiss, arguing that State Contracting lacked standing to sue for patent infringement because State Paving had not validly assigned the patents to State Contracting. The district court denied that motion. In a joint pretrial stipulation, the contractors then admitted literal infringement of both of the asserted patents, subject to their affirmative defenses. At the

***1062**

(Cite as: 346 F.3d 1057, *1062)

close of the evidence at trial, the district court ruled as a matter of law that the contractors' infringement was not willful, that the asserted patent claims were not invalid, and that the contractors did not have a valid defense of laches.

The jury returned a verdict in favor of State Contracting. Although the jury declined to award lost profits, it assessed damages against four of the contractors in the form of a reasonable royalty to State Contracting. The district court denied the contractors' motion for a new trial or remittitur of the jury verdict award.

II. Standing

We first address the issue of standing raised by the contractors in their cross-appeal. The contractors contend that State Contracting lacked standing to seek recovery for patent infringement because it did not have the requisite interest in the patents-in-suit at the time the action was filed. According to the contractors, the May 9, 1997, contract between State Paving and State Contracting merely granted a license under the asserted patents and did not transfer ownership of the patent rights.

Section 281 of the Patent Act, 35 U.S.C. § 281, authorizes a "patentee" to bring an action for patent infringement. A patentee "includes not only the patentee to whom the patent was issued but also the successors in title to the patentee." 35 U.S.C. § 100(d). We have held that "[a] conveyance of legal title by the patentee can be made only of the entire patent, an undivided part or share of the entire patent, or all rights under the patent in a specified geographical region of the United States." *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1551 (Fed.Cir.1995) (en banc) (citing *Waterman v. Mackenzie*, 138 U.S. 252, 255, 11 S.Ct. 334, 34 L.Ed. 923 (1891)). Such a transfer is an assignment, vesting the assignee with both title in the patent and the right to sue infringers. *Rite-Hite*, 56 F.3d at 1551. In contrast, less than a complete transfer of those interests constitutes a license and generally affords the licensee no right to sue for infringement. *Id.* We must therefore determine whether the transfer from State Paving to State Contracting was an assignment or a license.

[1] [2] [3] "To determine whether a provision in an agreement constitutes an assignment or a license, one must ascertain the intention of the parties and examine the substance of what was granted." *Vaupel Textilmaschinen KG v. Meccanica Euro Italia S.P.A.*, 944 F.2d 870, 873 (Fed.Cir.1991). A party that has been granted all substantial rights under the patent is considered the owner regardless of how the parties characterize the transaction that conveyed those rights. *Speedplay, Inc. v. Bebop, Inc.*, 211 F.3d 1245, 1250 (Fed.Cir.2000). The relevant contract in this case specifies that State Paving "sells, assigns, and transfers" to State Contracting the entire right title and interest in the inventions relating to an Integrated Column & Pile, to any component part and subassemblies thereof, and to any improvements in the foregoing Integrated Column & Pile, component part and subassemblies thereof, including, but not limited [to] subject matter disclosed in [the '288 patent and the '455 patent].

It is understood that this assignment is inclusive of all claims against third parties for infringement, past and present; and, that the recovery for infringement, if any, is and remains the property of the assignee.

That language has the effect of conveying full legal title in the patents to State Contracting and thus makes clear that State Contracting is the assignee of the *1063

(Cite as: 346 F.3d 1057, *1063)

two patents. The defendants contend that the contract omits language explicitly assigning the patents and that it does not transfer all rights in the patents. We disagree. The contract's transfer of the "entire right title and interest in the inventions," including the subject matter of the two patents, constitutes an assignment because it transfers the "exclusive right to make, use and vend the invention through the United States," *Waterman*, 138 U.S. at 255, 11 S.Ct. 334. The contract grants State Contracting the right to exclude others from making, using, or selling the claimed invention by transferring the right to sue third parties for infringement. See *Vaupel*, 944 F.2d at 875 (it is "particularly dispositive" that the agreement included the right to sue for infringement).

In determining whether a grant of all substantial rights was intended, it is useful to examine what rights, if any, were retained by the transferor. *Vaupel*, 944 F.2d at 875. State Paving did not expressly retain any rights in the patents; indeed, it did not even reserve the right to practice the patent itself. See *Abbott Labs. v. Diamedix Corp.*, 47 F.3d 1128, 1131 (Fed.Cir.1995) (requiring transferor to be joined in suit when transferor retained, *inter alia*, a limited right to make, use, and sell the patented product as well as the option to sue for infringement if the transferee declined to do so).

The contractors contend that State Paving retained the right to sue for future infringement, having expressly granted the right to sue only for past and present infringement. That argument rests on a strained reading of the agreement. The most reasonable interpretation of the agreement is that the right to sue for future infringement is subsumed within the right to sue for present infringement. It is unlikely that the parties included the reference to "present" infringement only to transfer the right to sue for infringement occurring at the precise moment the agreement was executed, and the contractors have not put forward any reason to conclude that the parties intended State Paving to retain the right to sue for future infringement. Accordingly, we affirm the district court's holding that State Paving

- transferred all substantial rights to State Contracting and that State Contracting had standing to bring this infringement suit against the contractors.
- On a related matter, after the contractors raised the standing issue, State Paving executed a new assignment to State Contracting, and State Contracting filed a new action designed to avoid the loss of potential damages if this court reversed the district court's ruling on standing. The district court dismissed that new action on *res judicata* grounds, and State Contracting appealed from that dismissal. In light of our conclusion that the May 9, 1997, document transferred ownership of the asserted patents to State Contracting, we need not address State Contracting's appeal on that issue.

III. Willfulness

At trial, the district court granted the contractors' motion, pursuant to Federal Rule of Civil Procedure 50, to dismiss State Contracting's claim that the contractors' infringement was willful. State Contracting appeals from that ruling.

KC

[4] "To establish willful infringement, a plaintiff must prove by clear and convincing evidence that the defendant acted without a reasonable belief that its action avoided infringement." *Crystal Semiconductor Corp. v. TriTech Microelectronics Int'l, Inc.*, 246 F.3d 1336, 1351 (Fed.Cir.2001). State Contracting argues that the evidence supports its contention that the contractors failed to exercise due care to avoid infringement. We disagree and hold ***1064**

(Cite as: 346 F.3d 1057, *1064)

that a jury could not find by clear and convincing evidence that the contractors acted without a reasonable belief that their conduct was lawful.

KC

[5] From the outset, the contractors' principal defense to infringement was that they were acting under a license granted to FDOT. It was entirely reasonable for FDOT and the contractors to construe the VECP contract as granting FDOT a license to practice the inventions recited in the asserted patents. See *Paper Converting Mach. Co. v. Magna-Graphics Corp.*, 745 F.2d 11, 20 (Fed.Cir.1984) ("An increase in damages for willfulness ... is generally inappropriate when the infringer mounts a good faith and substantial challenge to the existence of infringement."). The VECP agreement states that State Contracting "hereby grants to [FDOT] all rights to use, duplicate or disclose, in whole or in part, in any manner and for any purpose whatsoever, and to have or to permit others to do so, data reasonably necessary to fully utilize such proposal on this and any other Department contract." While we did not sustain the contention that FDOT obtained a license as a result of the agreement, it was reasonable for the contractors to believe, based on the language of that agreement, that FDOT had a license to practice the VECP inventions. Significantly, the district court so concluded in its ruling that led to the first appeal in this case. State Contracting does not dispute that, because of communications with FDOT, the contractors believed the VECP contract had given FDOT a license to practice the inventions recited in the two patents. Erol Clay McGonagill, Jr., FDOT's special counsel for construction claims, testified that "[w]hen we got the VECP it was fully understood that we were going to incorporate this design into the remainder of our projects. It was not only the reasonable thing to do, it was exactly what the VECP spec provided for us, and State Paving knew that because they had been involved in our project for a long time." Because the contractors had a substantial defense to infringement, the trial court correctly concluded that State Contracting could not prove by clear and convincing evidence that the contractors had no reasonable belief that they were not infringing.

State Contracting argues that the district court should have denied the contractors' Rule 50 motion on willfulness because the contractors failed to produce and rely on a written opinion of counsel. In addition, State Contracting contends that because at trial the contractors did not rely on the opinion of FDOT's in-house counsel as to the effect of the VECP agreement, it should be inferred that the opinion was adverse to the contractors' interests.

While we have stated that due care is often achieved by seeking the advice of competent counsel and receiving exculpatory advice, *Vulcan Eng'g Co., Inc. v. Fata Aluminium, Inc.*, 278 F.3d 1366, 1378 (Fed.Cir.2002), we have not held that obtaining the advice of counsel is the only means to avoid a finding of willfulness, regardless of the circumstances. See *Kloster Speedsteel, AB v. Crucible, Inc.*, 793 F.2d 1565, 1579 (Fed.Cir.1986) ("[N]ot every failure to seek an opinion of competent counsel will mandate an ultimate finding of willfulness."). In the circumstances of this case, it was reasonable for the contractors not to seek the advice of counsel. This is not a case in which the contractors concluded, without seeking the advice of counsel, that their actions fell outside the scope of the patents or that the patents were invalid. Instead, FDOT made a specific representation that it had a license to practice the invention, and it incorporated the invention in the contract specifications, thus requiring the contractors ***1065**

(Cite as: 346 F.3d 1057, *1065)

to use the patented process. It was not unreasonable for the contractors to rely on FDOT's representation without seeking the advice of counsel to confirm the accuracy of that representation. As for the contractors' failure to rely at trial on the opinion of FDOT's counsel, there is no evidence that the contractors were even aware of the existence of the opinion. Accordingly, no adverse inference can be drawn from the contractors' failure to introduce evidence regarding the contents of that opinion. Because it was reasonable for the contractors to conclude that they were

licensed to practice the VECP design, and because they had no obligation to introduce evidence regarding the advice of FDOT's counsel, we uphold the district court's ruling on the willfulness issue. [FN*]

FN* These circumstances distinguish this case from *Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 344 F.3d 1336 (Fed.Cir.2003), in which the court has recently granted *en banc* review to address issues relating to the relationship between the advice of counsel and willfulness. It is therefore unnecessary to suspend disposition of this case pending that decision.

IV. Laches

The contractors initially raised four affirmative defenses: laches, equitable estoppel, implied license, and acquiescence and consent. The trial judge submitted only the latter two to the jury. The judge granted State Contracting's Rule 50 motion to dismiss the equitable estoppel defense because he deemed that defense duplicative of the acquiescence and consent defense. Later in the same hearing, the judge stated that he had also granted a Rule 50 motion on laches, although he did not explain his reasons for rejecting that defense.

The contractors assume that the district court rejected the laches defense because the court believed that defense was duplicative of the other affirmative defenses the contractors raised at trial. Based on that assumption, they argue that the district court should not have rejected their laches defense because laches, unlike the other defenses raised at trial, does not require an affirmative act by the plaintiff other than delay in filing suit. See *A.C. Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1041 (Fed.Cir.1992) (*en banc*) ("laches focuses on the reasonableness of the plaintiff's delay in suit ... [while] equitable estoppel focuses on what the defendant has been led to reasonably believe from the plaintiff's conduct"; equitable estoppel requires misrepresentation by the plaintiff and reliance on the misrepresentation by the alleged infringer).

KC

[6] State Contracting argues that we should affirm the trial court's ruling on laches because the contractors failed to present any evidence of material prejudice, which is an element of laches. To successfully invoke laches, a defendant must prove that the plaintiff delayed filing suit an unreasonable and inexcusable length of time after the plaintiff knew or reasonably should have known of its claim against the defendant and that the delay resulted in material prejudice to the defendant. *Gasser Chair Co., Inc. v. Infant Chair Mfg. Corp.*, 60 F.3d 770, 773 (Fed.Cir.1995). Once those factual premises are established, the court weighs the equities in order to assess whether laches should apply to bar those damages that accrued prior to suit. See *Advanced Cardiovascular Sys., Inc. v. SciMed Life Sys., Inc.*, 988 F.2d 1157, 1161 (Fed.Cir.1993); *Aukerman*, 960 F.2d at 1041.

Because the period of delay in this case was less than six years, prejudice is not presumed. See *Aukerman*, 960 F.2d at 1035-36. The earliest that an infringement ***1066**

(Cite as: 346 F.3d 1057, *1066)

suit could have been brought was the '288 patent's issuance date, which was approximately four years before suit was actually filed. See *Meyers v. Asics Corp.*, 974 F.2d 1304, 1307 (Fed.Cir.1992) (laches period does not begin to run until the patent issues). Accordingly, in order to establish their defense of laches, the contractors had to prove that the delay materially prejudiced them.

KC

[7] We have stated that material prejudice may be either economic or evidentiary. *Aukerman*, 960 F.2d at 1033. The contractors do not allege evidentiary prejudice, so the prejudice inquiry in this case is directed solely to economic prejudice. Economic prejudice arises when a defendant suffers the loss of monetary investments or incurs damages that likely would have been prevented by earlier suit. *Id.* A nexus must be shown between the patentee's delay in filing suit and the expenditures; the alleged infringer must change his position "because of and as a result of the delay." *Hemstreet v. Computer Entry Sys. Corp.*, 972 F.2d 1290, 1294 (Fed.Cir.1992); see also *Gasser Chair*, 60 F.3d at 775 ("We reiterate that a change in the economic position of the infringer during the period of delay must be as a result of the delay; the infringer must prove that the change in economic position would not have occurred had the patentee sued earlier.").

KC

[8] The contractors contend that they were prejudiced because, as a result of the delay in filing suit, FDOT continued to incorporate the invention from the VECP into bids and contracts with them. If State Paving had promptly notified FDOT of the patent, the contractors argue, FDOT and the contractors could have avoided the controversy entirely simply by changing the soundwall specifications or returning to the original design. The contractors point to testimony by Mr. McGonagill, FDOT's special counsel, who said that State Paving was aware that it was FDOT's practice to incorporate VECP improvements in future projects. They also point to his testimony that FDOT may not have agreed to the VECP in the first place if it had known that State Paving intended to seek patent protection for the invention.

- . The evidence adduced by the contractors does not establish the kind of prejudice that is required to support a finding of laches. Firs

West Reporter Image (PDF)

(Cite as: 346 F.3d 1057)

346 F.3d 1057, 68 U.S.P.Q.2d 1481

Briefs and Other Related Documents

United States Court of Appeals,
Federal Circuit.

STATE CONTRACTING & ENGINEERING CORPORATION, Plaintiff-Appellant,
v.

CONDOTTE AMERICA, INC. (formerly known as Recchi America, Inc.), The Murphy
Construction Company, The Hardaway Company, Hubbard Construction Company,
Balfour Beatty Construction, Inc., Community Asphalt Corporation, And Hanson
Pipe & Products Southeast, Inc. (formerly known as Joelson Concrete Pipe
Company, Inc.), Defendants-Cross Appellants.

Nos. 02-1588, 02-1589, 03-1008.

DECIDED: Oct. 7, 2003.

After remand, 258 F.3d 1329, of highway construction company's suit against competitors for infringement of patents related to formation of integrated column and pile, the United States District Court for the Southern District of Florida, William P. Dimitrouleas, J., found non-willful infringement. Cross-appeals were taken. The Court of Appeals, Bryson, Circuit Judge, held that: (1) plaintiff had standing to sue; (2) infringement was not willful; (3) suit was not barred by laches; (4) patent was not invalid as anticipated; (5) fact issue existed as to whether patent was invalid as obvious; and (6) evidence supported damage award.

Affirmed in part, reversed in part, and remanded.

West Headnotes**[1] KeyCite Notes**↳ 291 Patents↳ 291X Title, Conveyances, and Contracts↳ 291X(B) Assignments and Other Transfers↳ 291k202 Construction and Operation of Assignments and Grants↳ 291k202(1) k. In General. Most Cited Cases↳ 291 Patents KeyCite Notes↳ 291X Title, Conveyances, and Contracts↳ 291X(C) Licenses and Contracts↳ 291k211 Construction and Operation of Licenses↳ 291k211(1) k. In General. Most Cited Cases**[2] KeyCite Notes**↳ 291 Patents↳ 291X Title, Conveyances, and Contracts↳ 291X(B) Assignments and Other Transfers↳ 291k196 Requisites and Validity of Assignments and Grants↳ 291k196.1 k. In General. Most Cited Cases

Party that has been granted all substantial rights under patent is considered owner, regardless of how parties characterize transaction that conveyed those rights.

[3] KeyCite Notes



↳ 291 Patents

↳ 291XII Infringement

↳ 291XII(C) Suits in Equity

↳ 291k286 k. Persons Entitled to Sue. Most Cited Cases

Contract transferring "entire right title and interest in" patents, including right to sue for "past and present" infringement, was sufficient to give assignee standing to sue for subsequent infringement; there was no implied retention by transferor of right to sue for future infringement.

[4] KeyCite Notes



↳ 291 Patents

↳ 291XII Infringement

↳ 291XII(C) Suits in Equity

↳ 291k312 Evidence

↳ 291k312(3) Weight and Sufficiency

↳ 291k312(8) k. Participation, Intent, and Contributory Infringement. Most Cited Cases

To establish willful patent infringement, plaintiff must prove by clear and convincing evidence that defendant acted without reasonable belief that its action avoided infringement.

[5] KeyCite Notes



↳ 291 Patents

↳ 291XII Infringement

↳ 291XII(A) What Constitutes Infringement

↳ 291k227 k. Intent or Purpose, and Knowledge. Most Cited Cases

State highway construction contractors' practice of competitor's patented technique for forming integrated columns and piles, under reasonable but erroneous belief that competitor had granted state implied license, precluded finding that infringement was willful, even though contractors never obtained advice of counsel; state had specifically represented to contractors that it had license to practice invention. 35 U.S.C.A. §§ 284, 285.

[6] KeyCite Notes



↳ 150 Equity

↳ 150II Laches and Stale Demands

↳ 150k68 Grounds and Essentials of Bar

↳ 150k72 Prejudice from Delay in General

↳ 150k72(1) k. In General. Most Cited Cases

To successfully invoke laches, defendant must prove that plaintiff delayed filing suit unreasonable and inexcusable length of time after plaintiff knew or reasonably should have known of its claim against defendant, and that delay resulted in material prejudice to defendant.

[7] KeyCite Notes



◆ 291 Patents◆ 291XII Infringement◆ 291XII(C) Suits in Equity◆ 291k289 Time to Sue◆ 291k289(2) Laches◆ 291k289(2.1) k. In General. Most Cited Cases

Economic prejudice arises, for purpose of applying laches defense in patent infringement action, when alleged infringer suffers loss of monetary investments or incurs damages that likely would have been prevented by earlier suit; nexus must be shown between patentee's delay in filing suit and expenditures, i.e., alleged infringer must change his position because of and as result of delay.

[8] KeyCite Notes◆ 291 Patents◆ 291XII Infringement◆ 291XII(C) Suits in Equity◆ 291k289 Time to Sue◆ 291k289(2) Laches◆ 291k289(2.1) k. In General. Most Cited Cases

Highway construction contractors were not prejudiced by competitor's delay in asserting patent, and thus competitor's infringement action was not barred by laches; there was no evidence that earlier filing would have led contractors to alter their behavior or avoid incurring certain expenses.

[9] KeyCite Notes◆ 291 Patents◆ 291IV Applications and Proceedings Thereon◆ 291k112 Conclusiveness and Effect of Decisions of Patent Office◆ 291k112.5 k. Sufficiency of Evidence to Offset Effect of Decision in General. Most Cited Cases

Party seeking to establish that particular patent claims are invalid must overcome statutory presumption of validity by clear and convincing evidence. 35 U.S.C.A. § 282.

[10] KeyCite Notes◆ 170B Federal Courts◆ 170BVIII Courts of Appeals◆ 170BVIII(K) Scope, Standards, and Extent◆ 170BVIII(K)1 In General◆ 170Bk768 Interlocutory, Collateral and Supplementary Proceedings and Questions◆ 170Bk769 k. On Appeal from Final Judgment. Most Cited Cases

Denial of pretrial motion for summary judgment is not reviewable on appeal from final judgment.

[11] KeyCite Notes◆ 291 Patents◆ 291XII Infringement◆ 291XII(C) Suits in Equity◆ 291k314 Hearing◆ 291k314(6) k. Findings and Determination. Most Cited Cases

It is incumbent upon court to set forth its construction of disputed patent claim terms prior to ruling on validity, or at least to explain why resolution of claim construction will not impact its ruling.

[12] KeyCite Notes



- ↳ 291 Patents
 - ↳ 291II Patentability
 - ↳ 291II(D) Anticipation
 - ↳ 291k63 Prior Patents
 - ↳ 291k66 Operation and Effect
 - ↳ 291k66(1.1) k. Nonanalogous Arts. Most Cited Cases

Question whether prior art reference is analogous art is irrelevant to whether that reference anticipates patent. 35 U.S.C.A. § 102(b).

[13] KeyCite Notes



- ↳ 291 Patents
 - ↳ 291II Patentability
 - ↳ 291II(D) Anticipation
 - ↳ 291k63 Prior Patents
 - ↳ 291k66 Operation and Effect
 - ↳ 291k66(1.10) k. Building and Paving Materials, and Methods. Most Cited Cases

Patent for forming integrated cement column and pile, calling for insertion of exposed portions of column's reinforcing bars into cementitious slurry, was not anticipated by prior art reference that called for pouring of cementitious slurry over starter bars after they were already in hole. 35 U.S.C.A. § 102(b).

[14] KeyCite Notes



- ↳ 291 Patents
 - ↳ 291II Patentability
 - ↳ 291II(A) Invention; Obviousness
 - ↳ 291k16 Invention and Obviousness in General
 - ↳ 291k16(2) k. Prior Art in General. Most Cited Cases

↳ 291 Patents KeyCite Notes



- ↳ 291II Patentability
 - ↳ 291II(A) Invention; Obviousness
 - ↳ 291k16 Invention and Obviousness in General
 - ↳ 291k16(3) k. View of Person Skilled in Art. Most Cited Cases

↳ 291 Patents KeyCite Notes



- ↳ 291II Patentability
 - ↳ 291II(A) Invention; Obviousness
 - ↳ 291k16.13 k. Fact Questions. Most Cited Cases

↳ 291 Patents KeyCite Notes



- ↳ 291II Patentability
 - ↳ 291II(A) Invention; Obviousness
 - ↳ 291k36 Weight and Sufficiency

- ↳ 291k36.1 Secondary Factors Affecting Invention or Obviousness
 - ↳ 291k36.1(1) k. In General. Most Cited Cases



↳ 291 Patents KeyCite Notes

- ↳ 291II Patentability
 - ↳ 291II(A) Invention; Obviousness
 - ↳ 291k36 Weight and Sufficiency
 - ↳ 291k36.2 Commercial Success
 - ↳ 291k36.2(1) k. In General. Most Cited Cases

Whether patent claim is invalid for obviousness is legal conclusion that is based on underlying factual inquiries into scope and content of prior art, differences between claimed invention and prior art, level of ordinary skill in art, and objective evidence of nonobviousness, including commercial success, copying, and long-felt need. 35 U.S.C.A. § 103.



[15] KeyCite Notes

- ↳ 291 Patents
 - ↳ 291XII Infringement
 - ↳ 291XII(C) Suits in Equity
 - ↳ 291k314 Hearing
 - ↳ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

Whether prior art reference is analogous, for purpose of determining patent validity, is question of fact.



[16] KeyCite Notes

- ↳ 291 Patents
 - ↳ 291II Patentability
 - ↳ 291II(D) Anticipation
 - ↳ 291k63 Prior Patents
 - ↳ 291k66 Operation and Effect
 - ↳ 291k66(1.1) k. Nonanalogous Arts. Most Cited Cases

Prior art reference is analogous, for purpose of determining patent validity, if it is from same field of endeavor as invention or, if outside inventor's field of endeavor, is nevertheless reasonably pertinent to particular problem with which inventor is involved.



[17] KeyCite Notes

- ↳ 291 Patents
 - ↳ 291XII Infringement
 - ↳ 291XII(C) Suits in Equity
 - ↳ 291k323 Final Judgment or Decree
 - ↳ 291k323.2 Summary Judgment
 - ↳ 291k323.2(3) k. Particular Cases. Most Cited Cases

Issue of material fact as to whether asserted prior art reference was analogous art precluded summary judgment on claim that patents for forming integrated cement column and pile were invalid as obvious. 35 U.S.C.A. § 103.



[18] KeyCite Notes

- ↳ 291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k323 Final Judgment or Decree

291k323.2 Summary Judgment

291k323.2(3) k. Particular Cases. Most Cited Cases

Issues of material fact as to scope of prior art references, differences between them and claimed invention, and whether there was motive to combine their teachings precluded summary judgment on claim that patents for forming integrated cement column and pile were invalid as obvious. 35 U.S.C.A. § 103.



[19] KeyCite Notes

170B Federal Courts

170BVIII Courts of Appeals

170BVIII(K) Scope, Standards, and Extent

170BVIII(K)5 Questions of Fact, Verdicts and Findings

170Bk870 Particular Issues and Questions

170Bk871 k. Damages and Extent of Relief. Most Cited Cases

Jury's decision with respect to award of damages must be upheld unless amount is grossly excessive or monstrous, clearly not supported by evidence, or based only on speculation or guesswork.



[20] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k312 Evidence

291k312(3) Weight and Sufficiency

291k312(10) k. Profits and Damages. Most Cited Cases

"Reasonable royalty" damage award to prevailing patent infringement plaintiff was supported by evidence, though plaintiff's expert used defendants' actual profit margins in his calculation; actual profit was relevant to expert's determination of what royalty rate would have been in hypothetical negotiation.



[21] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k319 Damages

291k319(1) k. In General. Most Cited Cases

"Reasonable royalty" damage award to prevailing patent infringement plaintiff was not grossly excessive, though rate was higher than settlement amount initially requested by plaintiff's predecessor in interest; rate was lower than hypothetical royalty predicted by plaintiff's expert.



[22] KeyCite Notes

157 Evidence

157XII Opinion Evidence

157XII(C) Competency of Experts

157k543.5 k. Damages. Most Cited Cases

Exclusion of expert testimony on issue of reasonable royalty rate damages, proffered by defendant found to have infringed patents for forming integrated cement columns and piles, was not abuse of discretion, after expert had conceded that he had no experience in placing value on patent and did not have any knowledge regarding reasonable royalties for construction-related patents. Fed. Rules Evid. Rule 702, 28 U.S.C.A.

 [23] KeyCite Notes

- ◆ 291 Patents
 - ◆ 291XII Infringement
 - ◆ 291XII(C) Suits in Equity
 - ◆ 291k319 Damages
 - ◆ 291k319(1) k. In General. Most Cited Cases

Damages for infringement of method patent begin to accrue from date of patent's issuance, regardless of whether defendant has notice of pending or actual issuance.

 [24] KeyCite Notes

- ◆ 291 Patents
 - ◆ 291XII Infringement
 - ◆ 291XII(C) Suits in Equity
 - ◆ 291k314 Hearing
 - ◆ 291k314(1) k. In General. Most Cited Cases

Jury instruction, on issue of damages for infringement of patents for forming integrated cement columns and piles, adequately protected defendants from being assessed for convoyed sales; jury was instructed not to consider entire construction job unless it found entire job to be functionally part of patented inventions used on job.

 KeyCite Notes

- ◆ 291 Patents
 - ◆ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents
 - ◆ 291k328 Patents Enumerated
 - ◆ 291k328(2) k. Original Utility. Most Cited Cases

3,654,767. Cited as Prior Art.

 KeyCite Notes

- ◆ 291 Patents
 - ◆ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents
 - ◆ 291k328 Patents Enumerated
 - ◆ 291k328(2) k. Original Utility. Most Cited Cases

5,234,288, 5,429,455. Infringed.

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— (Cite as: 346 F.3d 1057, *1060) —

Richard S. Ross, of Ft. Lauderdale, Florida, argued for plaintiff-appellant. Of counsel on the brief was John H. Faro, Faro & Associates, of Miami, Florida.

Stefan V. Stein and Steven L. Brannock, Holland & Knight LLP, of Tampa, Florida, argued for defendants-cross appellants. With them on the brief was Harvey S. Kauget.

Before MICHEL, BRYSON, and DYK, Circuit Judges.

BRYSON, Circuit Judge.

State Contracting & Engineering Corporation ("State Contracting") sued the State of Florida and a number of private contractors in the United States District Court for the Southern District of Florida, charging them with patent infringement. The State was dismissed from the case, and after an appeal to this court and a jury trial on remand, the district court entered judgment for State Contracting. Although it obtained an award of damages, State Contracting has appealed the district court's ruling that the contractors' infringement was not willful. For their part, the contractors have appealed from the judgment on a number of grounds, including State Contracting's standing to assert infringement of the two patents-in-suit, the district court's rejection of the contractors' defenses of laches and patent invalidity, and the jury's award of reasonable royalty damages. We uphold most of the district court's rulings, but reverse and remand for further proceedings on the issue of obviousness.

I. Background

This action stems from work done under a contract in which State Paving Corporation ("State Paving") constructed a set of sound barrier walls for the Florida Department of Transportation ("FDOT"). Sound barrier walls serve to reduce the level of highway noise reaching surrounding neighborhoods. During the construction, State Paving submitted a Value Engineering Change Proposal ("VECP") for a new integrated column and pile design to be used to support the sound barrier walls. FDOT accepted the proposal and incorporated it into the specifications for the project. In accordance with the VECP contract, FDOT paid State Paving half of the cost savings realized from the use of the VECP in the project.

Subsequently, State Paving applied for and was issued two patents related to the subject matter of the VECP: U.S. Patent No. 5,234,288 ("the '288 patent") and U.S. Patent No. 5,429,455 ("the '455 patent"). The '288 patent contains method claims directed to the formation of an integrated column and pile for use in building structures in sandy soil. Claim 1 of the '288 patent, the only independent claim, provides:

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(Cite as: 346 F.3d 1057, *1061)

A method of forming a ground-supported column or post, comprising the steps of providing a ground situs of suitable depth and width, filling said situs with a cementitious slurry, providing a reinforced, precast concrete member whose reinforcing bars extend out of the bottom of said member a substantial length beyond said bottom to form an exposed portion, inserting said exposed portion into said slurry until said member merges with said slurry, and permitting said slurry to harden, thus providing an integral column and pile set in the ground.

'288 patent, col. 4, ll. 2-12. Dependent claim 2 adds the limitation of using auger casting for the ground situs and slurry, while dependent claim 3 adds the use of falsework to keep the concrete member in position while the slurry hardens. Id., col. 4, ll. 13-19. According to the written description, an auger rotates to cut through the soil and create the hole. Cementitious material can then be pumped through the central channel of the auger so that when a retaining means or valve in the auger is opened, the cementitious material fills the hole. Id., col. 1, l. 61, to col. 2, l. 4.

The '455 patent contains three apparatus claims. Claim 1 is representative:

A precise reinforced concrete member containing reinforcing bars which have exposed portions extending beyond one end of the member and parallel to the longitudinal dimension of the member; the number, size and length of such exposed portions being such as to provide sufficient strength when the end of said concrete member is merged with and the bars inserted into a foundation pile of initially wet, cementitious material, which material is then allowed to set; said exposed portions being further characterized in being completely surrounded by said cementitious material; said concrete member and said pile being merged without mechanical attachment.

'455 patent, col. 3, l. 23, to col. 4, l. 3.

On May 9, 1997, State Paving entered into an agreement to transfer the invention disclosed in the two patents to State Contracting. State Contracting then sued FDOT and several highway construction contractors for infringement of the two patents. State Contracting alleged that FDOT had improperly incorporated the VECP into subsequent requests for bids and that the contractors had then infringed the patents when they carried out the construction contracts that resulted from those bids. The district court granted the defendants' motions for summary judgment with respect to State Contracting's claims of patent infringement, holding that, when it executed the VECP contract, State Paving had granted FDOT a license that authorized FDOT and its contractors to practice the asserted patents. On State Contracting's appeal, we affirmed the district court's ruling in favor of FDOT, but we held that the district court had erred in granting summary judgment to the private contractors on the patent infringement claims. State Contracting & Eng'g Corp. v. Florida, 258 F.3d 1329, 1340 (Fed.Cir.2001). We held that the VECP contract did not grant FDOT a license to practice the patents in future soundwall construction projects.

After the case was remanded to the district court, the contractors filed a motion to dismiss, arguing that State Contracting lacked standing to sue for patent infringement because State Paving had not validly assigned the patents to State Contracting. The district court denied that motion. In a joint pretrial stipulation, the contractors then admitted literal infringement of both of the asserted patents, subject to their affirmative defenses. At the

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(Cite as: 346 F.3d 1057, *1062)

close of the evidence at trial, the district court ruled as a matter of law that the contractors' infringement was not willful, that the asserted patent claims were not invalid, and that the contractors did not have a valid defense of laches.

The jury returned a verdict in favor of State Contracting. Although the jury declined to award lost profits, it assessed damages against four of the contractors in the form of a reasonable royalty to State Contracting. The district court denied the contractors' motion for a new trial or remittitur of the jury verdict award.

II. Standing

We first address the issue of standing raised by the contractors in their cross-appeal. The contractors contend that State Contracting lacked standing to seek recovery for patent infringement because it did not have the requisite interest in the patents-in-suit at the time the action was filed. According to the contractors, the May 9, 1997, contract between State Paving and State Contracting merely granted a license under the asserted patents and did not transfer ownership of the patent rights.

Section 281 of the Patent Act, 35 U.S.C. § 281, authorizes a "patentee" to bring an action for patent infringement. A patentee "includes not only the patentee to whom the patent was issued but also the successors in title to the patentee." 35 U.S.C. § 100(d). We have held that "[a] conveyance of legal title by the patentee can be made only of the entire patent, an undivided part or share of the entire patent, or all rights under the patent in a specified geographical region of the United States." *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1551 (Fed.Cir.1995) (en banc) (citing *Waterman v. Mackenzie*, 138 U.S. 252, 255, 11 S.Ct. 334, 34 L.Ed. 923 (1891)). Such a transfer is an assignment, vesting the assignee with both title in the patent and the right to sue infringers. *Rite-Hite*, 56 F.3d at 1551. In contrast, less than a complete transfer of those interests constitutes a license and generally affords the licensee no right to sue for infringement. *Id.* We must therefore determine whether the transfer from State Paving to State Contracting was an assignment or a license.

[1] [2] [3] "To determine whether a provision in an agreement constitutes an assignment or a license, one must ascertain the intention of the parties and examine the substance of what was granted." *Vaupel Textilmaschinen KG v. Meccanica Euro Italia S.P.A.*, 944 F.2d 870, 873 (Fed.Cir.1991). A party that has been granted all substantial rights under the patent is considered the owner regardless of how the parties characterize the transaction that conveyed those rights. *Speedplay, Inc. v. Bebop, Inc.*, 211 F.3d 1245, 1250 (Fed.Cir.2000). The relevant contract in this case specifies that State Paving "sells, assigns, and transfers" to State Contracting the entire right title and interest in the inventions relating to an Integrated Column & Pile, to any component part and subassemblies thereof, and to any improvements in the foregoing Integrated Column & Pile, component part and subassemblies thereof, including, but not limited [to] subject matter disclosed in [the '288 patent and the '455 patent].

It is understood that this assignment is inclusive of all claims against third parties for infringement, past and present; and, that the recovery for infringement, if any, is and remains the property of the assignee.

That language has the effect of conveying full legal title in the patents to State Contracting and thus makes clear that State Contracting is the assignee of the *1063

(Cite as: 346 F.3d 1057, *1063)

two patents. The defendants contend that the contract omits language explicitly assigning the patents and that it does not transfer all rights in the patents. We disagree. The contract's transfer of the "entire right title and interest in the inventions," including the subject matter of the two patents, constitutes an assignment because it transfers the "exclusive right to make, use and vend the invention through the United States," *Waterman*, 138 U.S. at 255, 11 S.Ct. 334. The contract grants State Contracting the right to exclude others from making, using, or selling the claimed invention by transferring the right to sue third parties for infringement. See *Vaupel*, 944 F.2d at 875 (it is "particularly dispositive" that the agreement included the right to sue for infringement).

In determining whether a grant of all substantial rights was intended, it is useful to examine what rights, if any, were retained by the transferor. *Vaupel*, 944 F.2d at 875. State Paving did not expressly retain any rights in the patents; indeed, it did not even reserve the right to practice the patent itself. See *Abbott Labs. v. Diamedix Corp.*, 47 F.3d 1128, 1131 (Fed.Cir.1995) (requiring transferor to be joined in suit when transferor retained, *inter alia*, a limited right to make, use, and sell the patented product as well as the option to sue for infringement if the transferee declined to do so).

The contractors contend that State Paving retained the right to sue for future infringement, having expressly granted the right to sue only for past and present infringement. That argument rests on a strained reading of the agreement. The most reasonable interpretation of the agreement is that the right to sue for future infringement is subsumed within the right to sue for present infringement. It is unlikely that the parties included the reference to "present" infringement only to transfer the right to sue for infringement occurring at the precise moment the agreement was executed, and the contractors have not put forward any reason to conclude that the parties intended State Paving to retain the right to sue for future infringement. Accordingly, we affirm the district court's holding that State Paving

transferred all substantial rights to State Contracting and that State Contracting had standing to bring this infringement suit against the contractors.

On a related matter, after the contractors raised the standing issue, State Paving executed a new assignment to State Contracting, and State Contracting filed a new action designed to avoid the loss of potential damages if this court reversed the district court's ruling on standing. The district court dismissed that new action on *res judicata* grounds, and State Contracting appealed from that dismissal. In light of our conclusion that the May 9, 1997, document transferred ownership of the asserted patents to State Contracting, we need not address State Contracting's appeal on that issue.

III. Willfulness

At trial, the district court granted the contractors' motion, pursuant to Federal Rule of Civil Procedure 50, to dismiss State Contracting's claim that the contractors' infringement was willful. State Contracting appeals from that ruling.



[4] "To establish willful infringement, a plaintiff must prove by clear and convincing evidence that the defendant acted without a reasonable belief that its action avoided infringement." *Crystal Semiconductor Corp. v. TriTech Microelectronics Int'l, Inc.*, 246 F.3d 1336, 1351 (Fed.Cir.2001). State Contracting argues that the evidence supports its contention that the contractors failed to exercise due care to avoid infringement. We disagree and hold ***1064**

— (Cite as: 346 F.3d 1057, *1064) —

that a jury could not find by clear and convincing evidence that the contractors acted without a reasonable belief that their conduct was lawful.



[5] From the outset, the contractors' principal defense to infringement was that they were acting under a license granted to FDOT. It was entirely reasonable for FDOT and the contractors to construe the VECP contract as granting FDOT a license to practice the inventions recited in the asserted patents. See *Paper Converting Mach. Co. v. Magna-Graphics Corp.*, 745 F.2d 11, 20 (Fed.Cir.1984) ("An increase in damages for willfulness ... is generally inappropriate when the infringer mounts a good faith and substantial challenge to the existence of infringement."). The VECP agreement states that State Contracting "hereby grants to [FDOT] all rights to use, duplicate or disclose, in whole or in part, in any manner and for any purpose whatsoever, and to have or to permit others to do so, data reasonably necessary to fully utilize such proposal on this and any other Department contract." While we did not sustain the contention that FDOT obtained a license as a result of the agreement, it was reasonable for the contractors to believe, based on the language of that agreement, that FDOT had a license to practice the VECP inventions. Significantly, the district court so concluded in its ruling that led to the first appeal in this case. State Contracting does not dispute that, because of communications with FDOT, the contractors believed the VECP contract had given FDOT a license to practice the inventions recited in the two patents. Erol Clay McGonagill, Jr., FDOT's special counsel for construction claims, testified that "[w]hen we got the VECP it was fully understood that we were going to incorporate this design into the remainder of our projects. It was not only the reasonable thing to do, it was exactly what the VECP spec provided for us, and State Paving knew that because they had been involved in our project for a long time." Because the contractors had a substantial defense to infringement, the trial court correctly concluded that State Contracting could not prove by clear and convincing evidence that the contractors had no reasonable belief that they were not infringing.

State Contracting argues that the district court should have denied the contractors' Rule 50 motion on willfulness because the contractors failed to produce and rely on a written opinion of counsel. In addition, State Contracting contends that because at trial the contractors did not rely on the opinion of FDOT's in-house counsel as to the effect of the VECP agreement, it should be inferred that the opinion was adverse to the contractors' interests.

While we have stated that due care is often achieved by seeking the advice of competent counsel and receiving exculpatory advice, *Vulcan Eng'g Co., Inc. v. Fata Aluminium, Inc.*, 278 F.3d 1366, 1378 (Fed.Cir.2002), we have not held that obtaining the advice of counsel is the only means to avoid a finding of willfulness, regardless of the circumstances. See *Kloster Speedsteel, AB v. Crucible, Inc.*, 793 F.2d 1565, 1579 (Fed.Cir.1986) ("[N]ot every failure to seek an opinion of competent counsel will mandate an ultimate finding of willfulness."). In the circumstances of this case, it was reasonable for the contractors not to seek the advice of counsel. This is not a case in which the contractors concluded, without seeking the advice of counsel, that their actions fell outside the scope of the patents or that the patents were invalid. Instead, FDOT made a specific representation that it had a license to practice the invention, and it incorporated the invention in the contract specifications, thus requiring the contractors

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to use the patented process. It was not unreasonable for the contractors to rely on FDOT's representation without seeking the advice of counsel to confirm the accuracy of that representation. As for the contractors' failure to rely at trial on the opinion of FDOT's counsel, there is no evidence that the contractors were even aware of the existence of the opinion. Accordingly, no adverse inference can be drawn from the contractors' failure to introduce evidence regarding the contents of that opinion. Because it was reasonable for the contractors to conclude that they were

licensed to practice the VECP design, and because they had no obligation to introduce evidence regarding the advice of FDOT's counsel, we uphold the district court's ruling on the willfulness issue. [FN*]

[FN*] These circumstances distinguish this case from *Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 344 F.3d 1336 (Fed.Cir.2003), in which the court has recently granted *en banc* review to address issues relating to the relationship between the advice of counsel and willfulness. It is therefore unnecessary to suspend disposition of this case pending that decision.

IV. Laches

The contractors initially raised four affirmative defenses: laches, equitable estoppel, implied license, and acquiescence and consent. The trial judge submitted only the latter two to the jury. The judge granted State Contracting's Rule 50 motion to dismiss the equitable estoppel defense because he deemed that defense duplicative of the acquiescence and consent defense. Later in the same hearing, the judge stated that he had also granted a Rule 50 motion on laches, although he did not explain his reasons for rejecting that defense.

The contractors assume that the district court rejected the laches defense because the court believed that defense was duplicative of the other affirmative defenses the contractors raised at trial. Based on that assumption, they argue that the district court should not have rejected their laches defense because laches, unlike the other defenses raised at trial, does not require an affirmative act by the plaintiff other than delay in filing suit. See *A.C. Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1041 (Fed.Cir.1992) (*en banc*) ("laches focuses on the reasonableness of the plaintiff's delay in suit ... [while] equitable estoppel focuses on what the defendant has been led to reasonably believe from the plaintiff's conduct"; equitable estoppel requires misrepresentation by the plaintiff and reliance on the misrepresentation by the alleged infringer).



[6] State Contracting argues that we should affirm the trial court's ruling on laches because the contractors failed to present any evidence of material prejudice, which is an element of laches. To successfully invoke laches, a defendant must prove that the plaintiff delayed filing suit an unreasonable and inexcusable length of time after the plaintiff knew or reasonably should have known of its claim against the defendant and that the delay resulted in material prejudice to the defendant. *Gasser Chair Co., Inc. v. Infanti Chair Mfg. Corp.*, 60 F.3d 770, 773 (Fed.Cir.1995). Once those factual premises are established, the court weighs the equities in order to assess whether laches should apply to bar those damages that accrued prior to suit. See *Advanced Cardiovascular Sys., Inc. v. SciMed Life Sys., Inc.*, 988 F.2d 1157, 1161 (Fed.Cir.1993); *Aukerman*, 960 F.2d at 1041.

Because the period of delay in this case was less than six years, prejudice is not presumed. See *Aukerman*, 960 F.2d at 1035-36. The earliest that an infringement ***1066**

— (Cite as: 346 F.3d 1057, *1066) —

suit could have been brought was the '288 patent's issuance date, which was approximately four years before suit was actually filed. See *Meyers v. Asics Corp.*, 974 F.2d 1304, 1307 (Fed.Cir.1992) (laches period does not begin to run until the patent issues). Accordingly, in order to establish their defense of laches, the contractors had to prove that the delay materially prejudiced them.



[7] We have stated that material prejudice may be either economic or evidentiary. *Aukerman*, 960 F.2d at 1033. The contractors do not allege evidentiary prejudice, so the prejudice inquiry in this case is directed solely to economic prejudice. Economic prejudice arises when a defendant suffers the loss of monetary investments or incurs damages that likely would have been prevented by earlier suit. *Id.* A nexus must be shown between the patentee's delay in filing suit and the expenditures; the alleged infringer must change his position "because of and as a result of the delay." *Hemstreet v. Computer Entry Sys. Corp.*, 972 F.2d 1290, 1294 (Fed.Cir.1992); see also *Gasser Chair*, 60 F.3d at 775 ("We reiterate that a change in the economic position of the infringer during the period of delay must be as a result of the delay; the infringer must prove that the change in economic position would not have occurred had the patentee sued earlier.").



[8] The contractors contend that they were prejudiced because, as a result of the delay in filing suit, FDOT continued to incorporate the invention from the VECP into bids and contracts with them. If State Paving had promptly notified FDOT of the patent, the contractors argue, FDOT and the contractors could have avoided the controversy entirely simply by changing the soundwall specifications or returning to the original design. The contractors point to testimony by Mr. McGonagill, FDOT's special counsel, who said that State Paving was aware that it was FDOT's practice to incorporate VECP improvements in future projects. They also point to his testimony that FDOT may not have agreed to the VECP in the first place if it had known that State Paving intended to seek patent protection for the invention.

The evidence adduced by the contractors does not establish the kind of prejudice that is required to support a finding of laches. Firs

West Reporter Image (PDF)

(Cite as: 346 F.3d 1057)

346 F.3d 1057, 68 U.S.P.Q.2d 1481

Briefs and Other Related Documents

United States Court of Appeals,
Federal Circuit.

STATE CONTRACTING & ENGINEERING CORPORATION, Plaintiff-Appellant,
v.

CONDOTTE AMERICA, INC. (formerly known as Recchi America, Inc.), The Murphy Construction Company, The Hardaway Company, Hubbard Construction Company, Balfour Beatty Construction, Inc., Community Asphalt Corporation, And Hanson Pipe & Products Southeast, Inc. (formerly known as Joelson Concrete Pipe Company, Inc.), Defendants-Cross Appellants.

Nos. 02-1588, 02-1589, 03-1008.

DECIDED: Oct. 7, 2003.

After remand, 258 F.3d 1329, of highway construction company's suit against competitors for infringement of patents related to formation of integrated column and pile, the United States District Court for the Southern District of Florida, William P. Dimitrouleas, J., found non-willful infringement. Cross-appeals were taken. The Court of Appeals, Bryson, Circuit Judge, held that: (1) plaintiff had standing to sue; (2) infringement was not willful; (3) suit was not barred by laches; (4) patent was not invalid as anticipated; (5) fact issue existed as to whether patent was invalid as obvious; and (6) evidence supported damage award.

Affirmed in part, reversed in part, and remanded.

West Headnotes**[1] KeyCite Notes**↳ 291 Patents

- ↳ 291X Title, Conveyances, and Contracts
- ↳ 291X(B) Assignments and Other Transfers
- ↳ 291k202 Construction and Operation of Assignments and Grants
- ↳ 291k202(1) k. In General. Most Cited Cases

↳ 291 Patents KeyCite Notes

- ↳ 291X Title, Conveyances, and Contracts
- ↳ 291X(C) Licenses and Contracts
- ↳ 291k211 Construction and Operation of Licenses
- ↳ 291k211(1) k. In General. Most Cited Cases

To determine whether provision in agreement transferring patent rights constitutes assignment or mere license, one must ascertain intention of parties and examine substance of what was granted.

**[2] KeyCite Notes**↳ 291 Patents

- ↳ 291X Title, Conveyances, and Contracts
- ↳ 291X(B) Assignments and Other Transfers
- ↳ 291k196 Requisites and Validity of Assignments and Grants
- ↳ 291k196.1 k. In General. Most Cited Cases

Party that has been granted all substantial rights under patent is considered owner, regardless of how parties characterize transaction that conveyed those rights.



[3] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k286 k. Persons Entitled to Sue. Most Cited Cases

Contract transferring "entire right title and interest in" patents, including right to sue for "past and present" infringement, was sufficient to give assignee standing to sue for subsequent infringement; there was no implied retention by transferor of right to sue for future infringement.



[4] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k312 Evidence

291k312(3) Weight and Sufficiency

291k312(8) k. Participation, Intent, and Contributory Infringement. Most Cited Cases

To establish willful patent infringement, plaintiff must prove by clear and convincing evidence that defendant acted without reasonable belief that its action avoided infringement.



[5] KeyCite Notes

291 Patents

291XII Infringement

291XII(A) What Constitutes Infringement

291k227 k. Intent or Purpose, and Knowledge. Most Cited Cases

State highway construction contractors' practice of competitor's patented technique for forming integrated columns and piles, under reasonable but erroneous belief that competitor had granted state implied license, precluded finding that infringement was willful, even though contractors never obtained advice of counsel; state had specifically represented to contractors that it had license to practice invention. 35 U.S.C.A. §§ 284, 285.



[6] KeyCite Notes

150 Equity

150II Laches and Stale Demands

150k68 Grounds and Essentials of Bar

150k72 Prejudice from Delay in General

150k72(1) k. In General. Most Cited Cases

To successfully invoke laches, defendant must prove that plaintiff delayed filing suit unreasonable and inexcusable length of time after plaintiff knew or reasonably should have known of its claim against defendant, and that delay resulted in material prejudice to defendant.



[7] KeyCite Notes

◆ 291 Patents◆ 291XII Infringement◆ 291XII(C) Suits in Equity◆ 291k289 Time to Sue◆ 291k289(2) Laches◆ 291k289(2.1) k. In General. Most Cited Cases

Economic prejudice arises, for purpose of applying laches defense in patent infringement action, when alleged infringer suffers loss of monetary investments or incurs damages that likely would have been prevented by earlier suit; nexus must be shown between patentee's delay in filing suit and expenditures, i.e., alleged infringer must change his position because of and as result of delay.

[8] KeyCite Notes◆ 291 Patents◆ 291XII Infringement◆ 291XII(C) Suits in Equity◆ 291k289 Time to Sue◆ 291k289(2) Laches◆ 291k289(2.1) k. In General. Most Cited Cases

Highway construction contractors were not prejudiced by competitor's delay in asserting patent, and thus competitor's infringement action was not barred by laches; there was no evidence that earlier filing would have led contractors to alter their behavior or avoid incurring certain expenses.

[9] KeyCite Notes◆ 291 Patents◆ 291IV Applications and Proceedings Thereon◆ 291k112 Conclusiveness and Effect of Decisions of Patent Office◆ 291k112.5 k. Sufficiency of Evidence to Offset Effect of Decision in General. Most Cited Cases

Party seeking to establish that particular patent claims are invalid must overcome statutory presumption of validity by clear and convincing evidence. 35 U.S.C.A. § 282.

[10] KeyCite Notes◆ 170B Federal Courts◆ 170BVIII Courts of Appeals◆ 170BVIII(K) Scope, Standards, and Extent◆ 170BVIII(K)1 In General◆ 170Bk768 Interlocutory, Collateral and Supplementary Proceedings and Questions◆ 170Bk769 k. On Appeal from Final Judgment. Most Cited Cases

Denial of pretrial motion for summary judgment is not reviewable on appeal from final judgment.

[11] KeyCite Notes◆ 291 Patents◆ 291XII Infringement◆ 291XII(C) Suits in Equity◆ 291k314 Hearing◆ 291k314(6) k. Findings and Determination. Most Cited Cases

It is incumbent upon court to set forth its construction of disputed patent claim terms prior to ruling on validity, or at least to explain why resolution of claim construction will not impact its ruling.

[12] KeyCite Notes 

- ⌚ 291 Patents
 - ⌚ 291II Patentability
 - ⌚ 291II(D) Anticipation
 - ⌚ 291k63 Prior Patents
 - ⌚ 291k66 Operation and Effect
 - ⌚ 291k66(1.1) k. Nonanalogous Arts. Most Cited Cases

Question whether prior art reference is analogous art is irrelevant to whether that reference anticipates patent. 35 U.S.C.A. § 102(b).

[13] KeyCite Notes 

- ⌚ 291 Patents
 - ⌚ 291II Patentability
 - ⌚ 291II(D) Anticipation
 - ⌚ 291k63 Prior Patents
 - ⌚ 291k66 Operation and Effect
 - ⌚ 291k66(1.10) k. Building and Paving Materials, and Methods. Most Cited Cases

Patent for forming integrated cement column and pile, calling for insertion of exposed portions of column's reinforcing bars into cementitious slurry, was not anticipated by prior art reference that called for pouring of cementitious slurry over starter bars after they were already in hole. 35 U.S.C.A. § 102(b).

[14] KeyCite Notes 

- ⌚ 291 Patents
 - ⌚ 291II Patentability
 - ⌚ 291II(A) Invention; Obviousness
 - ⌚ 291k16 Invention and Obviousness in General
 - ⌚ 291k16(2) k. Prior Art in General. Most Cited Cases

⌚ 291 Patents KeyCite Notes 

- ⌚ 291II Patentability
 - ⌚ 291II(A) Invention; Obviousness
 - ⌚ 291k16 Invention and Obviousness in General
 - ⌚ 291k16(3) k. View of Person Skilled in Art. Most Cited Cases

⌚ 291 Patents KeyCite Notes 

- ⌚ 291II Patentability
 - ⌚ 291II(A) Invention; Obviousness
 - ⌚ 291k16.13 k. Fact Questions. Most Cited Cases

⌚ 291 Patents KeyCite Notes 

- ⌚ 291II Patentability
 - ⌚ 291II(A) Invention; Obviousness
 - ⌚ 291k36 Weight and Sufficiency

- ↳ 291k36.1 Secondary Factors Affecting Invention or Obviousness
 - ↳ 291k36.1(1) k. In General. Most Cited Cases



↳ 291 Patents KeyCite Notes

↳ 291II Patentability

- ↳ 291II(A) Invention; Obviousness
 - ↳ 291k36 Weight and Sufficiency
 - ↳ 291k36.2 Commercial Success
 - ↳ 291k36.2(1) k. In General. Most Cited Cases

Whether patent claim is invalid for obviousness is legal conclusion that is based on underlying factual inquiries into scope and content of prior art, differences between claimed invention and prior art, level of ordinary skill in art, and objective evidence of nonobviousness, including commercial success, copying, and long-felt need. 35 U.S.C.A. § 103.



[15] KeyCite Notes

↳ 291 Patents

- ↳ 291XII Infringement
 - ↳ 291XII(C) Suits in Equity
 - ↳ 291k314 Hearing
 - ↳ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

Whether prior art reference is analogous, for purpose of determining patent validity, is question of fact.



[16] KeyCite Notes

↳ 291 Patents

- ↳ 291II Patentability
 - ↳ 291II(D) Anticipation
 - ↳ 291k63 Prior Patents
 - ↳ 291k66 Operation and Effect
 - ↳ 291k66(1.1) k. Nonanalogous Arts. Most Cited Cases

Prior art reference is analogous, for purpose of determining patent validity, if it is from same field of endeavor as invention or, if outside inventor's field of endeavor, is nevertheless reasonably pertinent to particular problem with which inventor is involved.



[17] KeyCite Notes

↳ 291 Patents

- ↳ 291XII Infringement
 - ↳ 291XII(C) Suits in Equity
 - ↳ 291k323 Final Judgment or Decree
 - ↳ 291k323.2 Summary Judgment
 - ↳ 291k323.2(3) k. Particular Cases. Most Cited Cases

Issue of material fact as to whether asserted prior art reference was analogous art precluded summary judgment on claim that patents for forming integrated cement column and pile were invalid as obvious. 35 U.S.C.A. § 103.



[18] KeyCite Notes

↳ 291 Patents

- ⌚ 291XII Infringement
- ⌚ 291XII(C) Suits in Equity
- ⌚ 291k323 Final Judgment or Decree
- ⌚ 291k323.2 Summary Judgment
- ⌚ 291k323.2(3) k. Particular Cases. Most Cited Cases

Issues of material fact as to scope of prior art references, differences between them and claimed invention, and whether there was motive to combine their teachings precluded summary judgment on claim that patents for forming integrated cement column and pile were invalid as obvious. 35 U.S.C.A. § 103.



[19] KeyCite Notes

- ⌚ 170B Federal Courts
- ⌚ 170BVIII Courts of Appeals
- ⌚ 170BVIII(K) Scope, Standards, and Extent
- ⌚ 170BVIII(K)5 Questions of Fact, Verdicts and Findings
- ⌚ 170Bk870 Particular Issues and Questions
- ⌚ 170Bk871 k. Damages and Extent of Relief. Most Cited Cases

Jury's decision with respect to award of damages must be upheld unless amount is grossly excessive or monstrous, clearly not supported by evidence, or based only on speculation or guesswork.



[20] KeyCite Notes

- ⌚ 291 Patents
- ⌚ 291XII Infringement
- ⌚ 291XII(C) Suits in Equity
- ⌚ 291k312 Evidence
- ⌚ 291k312(3) Weight and Sufficiency
- ⌚ 291k312(10) k. Profits and Damages. Most Cited Cases

"Reasonable royalty" damage award to prevailing patent infringement plaintiff was supported by evidence, though plaintiff's expert used defendants' actual profit margins in his calculation; actual profit was relevant to expert's determination of what royalty rate would have been in hypothetical negotiation.



[21] KeyCite Notes

- ⌚ 291 Patents
- ⌚ 291XII Infringement
- ⌚ 291XII(C) Suits in Equity
- ⌚ 291k319 Damages
- ⌚ 291k319(1) k. In General. Most Cited Cases

"Reasonable royalty" damage award to prevailing patent infringement plaintiff was not grossly excessive, though rate was higher than settlement amount initially requested by plaintiff's predecessor in interest; rate was lower than hypothetical royalty predicted by plaintiff's expert.



[22] KeyCite Notes

- ⌚ 157 Evidence
- ⌚ 157XII Opinion Evidence
- ⌚ 157XII(C) Competency of Experts
- ⌚ 157k543.5 k. Damages. Most Cited Cases

Exclusion of expert testimony on issue of reasonable royalty rate damages, proffered by defendant found to have infringed patents for forming integrated cement columns and piles, was not abuse of discretion, after expert had conceded that he had no experience in placing value on patent and did not have any knowledge regarding reasonable royalties for construction-related patents. Fed. Rules Evid. Rule 702, 28 U.S.C.A.



[23] KeyCite Notes

- ◆ 291 Patents
 - ◆ 291XII Infringement
 - ◆ 291XII(C) Suits in Equity
 - ◆ 291k319 Damages
 - ◆ 291k319(1) k. In General. Most Cited Cases

Damages for infringement of method patent begin to accrue from date of patent's issuance, regardless of whether defendant has notice of pending or actual issuance.



[24] KeyCite Notes

- ◆ 291 Patents
 - ◆ 291XII Infringement
 - ◆ 291XII(C) Suits in Equity
 - ◆ 291k314 Hearing
 - ◆ 291k314(1) k. In General. Most Cited Cases

Jury instruction, on issue of damages for infringement of patents for forming integrated cement columns and piles, adequately protected defendants from being assessed for convoyed sales; jury was instructed not to consider entire construction job unless it found entire job to be functionally part of patented inventions used on job.



KeyCite Notes

- ◆ 291 Patents
 - ◆ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents
 - ◆ 291k328 Patents Enumerated
 - ◆ 291k328(2) k. Original Utility. Most Cited Cases

3,654,767. Cited as Prior Art.



KeyCite Notes

- ◆ 291 Patents
 - ◆ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents
 - ◆ 291k328 Patents Enumerated
 - ◆ 291k328(2) k. Original Utility. Most Cited Cases

5,234,288, 5,429,455. Infringed.

*1060

(Cite as: 346 F.3d 1057, *1060)

Richard S. Ross, of Ft. Lauderdale, Florida, argued for plaintiff-appellant. Of counsel on the brief was John H. Faro, Faro & Associates, of Miami, Florida.

Stefan V. Stein and Steven L. Brannock, Holland & Knight LLP, of Tampa, Florida, argued for defendants-cross appellants. With them on the brief was Harvey S. Kauget.

Before MICHEL, BRYSON, and DYK, Circuit Judges.

BRYSON, Circuit Judge.

State Contracting & Engineering Corporation ("State Contracting") sued the State of Florida and a number of private contractors in the United States District Court for the Southern District of Florida, charging them with patent infringement. The State was dismissed from the case, and after an appeal to this court and a jury trial on remand, the district court entered judgment for State Contracting. Although it obtained an award of damages, State Contracting has appealed the district court's ruling that the contractors' infringement was not willful. For their part, the contractors have appealed from the judgment on a number of grounds, including State Contracting's standing to assert infringement of the two patents-in-suit, the district court's rejection of the contractors' defenses of laches and patent invalidity, and the jury's award of reasonable royalty damages. We uphold most of the district court's rulings, but reverse and remand for further proceedings on the issue of obviousness.

I. Background

This action stems from work done under a contract in which State Paving Corporation ("State Paving") constructed a set of sound barrier walls for the Florida Department of Transportation ("FDOT"). Sound barrier walls serve to reduce the level of highway noise reaching surrounding neighborhoods. During the construction, State Paving submitted a Value Engineering Change Proposal ("VECP") for a new integrated column and pile design to be used to support the sound barrier walls. FDOT accepted the proposal and incorporated it into the specifications for the project. In accordance with the VECP contract, FDOT paid State Paving half of the cost savings realized from the use of the VECP in the project.

Subsequently, State Paving applied for and was issued two patents related to the subject matter of the VECP: U.S. Patent No. 5,234,288 ("the '288 patent") and U.S. Patent No. 5,429,455 ("the '455 patent"). The '288 patent contains method claims directed to the formation of an integrated column and pile for use in building structures in sandy soil. Claim 1 of the '288 patent, the only independent claim, provides:

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(Cite as: 346 F.3d 1057, *1061)

A method of forming a ground-supported column or post, comprising the steps of providing a ground situs of suitable depth and width, filling said situs with a cementitious slurry, providing a reinforced, precast concrete member whose reinforcing bars extend out of the bottom of said member a substantial length beyond said bottom to form an exposed portion, inserting said exposed portion into said slurry until said member merges with said slurry, and permitting said slurry to harden, thus providing an integral column and pile set in the ground.

'288 patent, col. 4, ll. 2-12. Dependent claim 2 adds the limitation of using auger casting for the ground situs and slurry, while dependent claim 3 adds the use of falsework to keep the concrete member in position while the slurry hardens. *Id.*, col. 4, ll. 13-19. According to the written description, an auger rotates to cut through the soil and create the hole. Cementitious material can then be pumped through the central channel of the auger so that when a retaining means or valve in the auger is opened, the cementitious material fills the hole. *Id.*, col. 1, l. 61, to col. 2, l. 4.

The '455 patent contains three apparatus claims. Claim 1 is representative:

A precise reinforced concrete member containing reinforcing bars which have exposed portions extending beyond one end of the member and parallel to the longitudinal dimension of the member; the number, size and length of such exposed portions being such as to provide sufficient strength when the end of said concrete member is merged with and the bars inserted into a foundation pile of initially wet, cementitious material, which material is then allowed to set; said exposed portions being further characterized in being completely surrounded by said cementitious material; said concrete member and said pile being merged without mechanical attachment.

'455 patent, col. 3, l. 23, to col. 4, l. 3.

On May 9, 1997, State Paving entered into an agreement to transfer the invention disclosed in the two patents to State Contracting. State Contracting then sued FDOT and several highway construction contractors for infringement of the two patents. State Contracting alleged that FDOT had improperly incorporated the VECP into subsequent requests for bids and that the contractors had then infringed the patents when they carried out the construction contracts that resulted from those bids. The district court granted the defendants' motions for summary judgment with respect to State Contracting's claims of patent infringement, holding that, when it executed the VECP contract, State Paving had granted FDOT a license that authorized FDOT and its contractors to practice the asserted patents. On State Contracting's appeal, we affirmed the district court's ruling in favor of FDOT, but we held that the district court had erred in granting summary judgment to the private contractors on the patent infringement claims. State Contracting & Eng'g Corp. v. Florida, 258 F.3d 1329, 1340 (Fed.Cir.2001). We held that the VECP contract did not grant FDOT a license to practice the patents in future soundwall construction projects.

After the case was remanded to the district court, the contractors filed a motion to dismiss, arguing that State Contracting lacked standing to sue for patent infringement because State Paving had not validly assigned the patents to State Contracting. The district court denied that motion. In a joint pretrial stipulation, the contractors then admitted literal infringement of both of the asserted patents, subject to their affirmative defenses. At the

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(Cite as: 346 F.3d 1057, *1062)

close of the evidence at trial, the district court ruled as a matter of law that the contractors' infringement was not willful, that the asserted patent claims were not invalid, and that the contractors did not have a valid defense of laches.

The jury returned a verdict in favor of State Contracting. Although the jury declined to award lost profits, it assessed damages against four of the contractors in the form of a reasonable royalty to State Contracting. The district court denied the contractors' motion for a new trial or remittitur of the jury verdict award.

II. Standing

We first address the issue of standing raised by the contractors in their cross-appeal. The contractors contend that State Contracting lacked standing to seek recovery for patent infringement because it did not have the requisite interest in the patents-in-suit at the time the action was filed. According to the contractors, the May 9, 1997, contract between State Paving and State Contracting merely granted a license under the asserted patents and did not transfer ownership of the patent rights.

Section 281 of the Patent Act, 35 U.S.C. § 281, authorizes a "patentee" to bring an action for patent infringement. A patentee "includes not only the patentee to whom the patent was issued but also the successors in title to the patentee." 35 U.S.C. § 100(d). We have held that "[a] conveyance of legal title by the patentee can be made only of the entire patent, an undivided part or share of the entire patent, or all rights under the patent in a specified geographical region of the United States." Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538, 1551 (Fed.Cir.1995) (en banc) (citing Waterman v. Mackenzie, 138 U.S. 252, 255, 11 S.Ct. 334, 34 L.Ed. 923 (1891)). Such a transfer is an assignment, vesting the assignee with both title in the patent and the right to sue infringers. Rite-Hite, 56 F.3d at 1551. In contrast, less than a complete transfer of those interests constitutes a license and generally affords the licensee no right to sue for infringement. *Id.* We must therefore determine whether the transfer from State Paving to State Contracting was an assignment or a license.

[KC] [KC] [KC]

[1] [2] [3] "To determine whether a provision in an agreement constitutes an assignment or a license, one must ascertain the intention of the parties and examine the substance of what was granted." Vaupel Textilmaschinen KG v. Meccanica Euro Italia S.P.A., 944 F.2d 870, 873 (Fed.Cir.1991). A party that has been granted all substantial rights under the patent is considered the owner regardless of how the parties characterize the transaction that conveyed those rights. Speedplay, Inc. v. Bebop, Inc., 211 F.3d 1245, 1250 (Fed.Cir.2000). The relevant contract in this case specifies that State Paving "sells, assigns, and transfers" to State Contracting the entire right title and interest in the inventions relating to an Integrated Column & Pile, to any component part and subassemblies thereof, and to any improvements in the foregoing Integrated Column & Pile, component part and subassemblies thereof, including, but not limited [to] subject matter disclosed in [the '288 patent and the '455 patent].

It is understood that this assignment is inclusive of all claims against third parties for infringement, past and present; and, that the recovery for infringement, if any, is and remains the property of the assignee.

That language has the effect of conveying full legal title in the patents to State Contracting and thus makes clear that State Contracting is the assignee of the *1063

(Cite as: 346 F.3d 1057, *1063)

two patents. The defendants contend that the contract omits language explicitly assigning the patents and that it does not transfer all rights in the patents. We disagree. The contract's transfer of the "entire right title and interest in the inventions," including the subject matter of the two patents, constitutes an assignment because it transfers the "exclusive right to make, use and vend the invention through the United States," Waterman, 138 U.S. at 255, 11 S.Ct. 334. The contract grants State Contracting the right to exclude others from making, using, or selling the claimed invention by transferring the right to sue third parties for infringement. See Vaupel, 944 F.2d at 875 (it is "particularly dispositive" that the agreement included the right to sue for infringement).

In determining whether a grant of all substantial rights was intended, it is useful to examine what rights, if any, were retained by the transferor. Vaupel, 944 F.2d at 875. State Paving did not expressly retain any rights in the patents; indeed, it did not even reserve the right to practice the patent itself. See Abbott Labs. v. Diamedix Corp., 47 F.3d 1128, 1131 (Fed.Cir.1995) (requiring transferor to be joined in suit when transferor retained, *inter alia*, a limited right to make, use, and sell the patented product as well as the option to sue for infringement if the transferee declined to do so).

The contractors contend that State Paving retained the right to sue for future infringement, having expressly granted the right to sue only for past and present infringement. That argument rests on a strained reading of the agreement. The most reasonable interpretation of the agreement is that the right to sue for future infringement is subsumed within the right to sue for present infringement. It is unlikely that the parties included the reference to "present" infringement only to transfer the right to sue for infringement occurring at the precise moment the agreement was executed, and the contractors have not put forward any reason to conclude that the parties intended State Paving to retain the right to sue for future infringement. Accordingly, we affirm the district court's holding that State Paving

transferred all substantial rights to State Contracting and that State Contracting had standing to bring this infringement suit against the contractors.

On a related matter, after the contractors raised the standing issue, State Paving executed a new assignment to State Contracting, and State Contracting filed a new action designed to avoid the loss of potential damages if this court reversed the district court's ruling on standing. The district court dismissed that new action on *res judicata* grounds, and State Contracting appealed from that dismissal. In light of our conclusion that the May 9, 1997, document transferred ownership of the asserted patents to State Contracting, we need not address State Contracting's appeal on that issue.

III. Willfulness

At trial, the district court granted the contractors' motion, pursuant to Federal Rule of Civil Procedure 50, to dismiss State Contracting's claim that the contractors' infringement was willful. State Contracting appeals from that ruling.

[KC]

[4] "To establish willful infringement, a plaintiff must prove by clear and convincing evidence that the defendant acted without a reasonable belief that its action avoided infringement." *Crystal Semiconductor Corp. v. TriTech Microelectronics Int'l, Inc.*, 246 F.3d 1336, 1351 (Fed.Cir.2001). State Contracting argues that the evidence supports its contention that the contractors failed to exercise due care to avoid infringement. We disagree and hold ***1064**

(Cite as: 346 F.3d 1057, *1064)

that a jury could not find by clear and convincing evidence that the contractors acted without a reasonable belief that their conduct was lawful.

[KC]

[5] From the outset, the contractors' principal defense to infringement was that they were acting under a license granted to FDOT. It was entirely reasonable for FDOT and the contractors to construe the VECP contract as granting FDOT a license to practice the inventions recited in the asserted patents. See *Paper Converting Mach. Co. v. Magna-Graphics Corp.*, 745 F.2d 11, 20 (Fed.Cir.1984) ("An increase in damages for willfulness ... is generally inappropriate when the infringer mounts a good faith and substantial challenge to the existence of infringement."). The VECP agreement states that State Contracting "hereby grants to [FDOT] all rights to use, duplicate or disclose, in whole or in part, in any manner and for any purpose whatsoever, and to have or to permit others to do so, data reasonably necessary to fully utilize such proposal on this and any other Department contract." While we did not sustain the contention that FDOT obtained a license as a result of the agreement, it was reasonable for the contractors to believe, based on the language of that agreement, that FDOT had a license to practice the VECP inventions. Significantly, the district court so concluded in its ruling that led to the first appeal in this case. State Contracting does not dispute that, because of communications with FDOT, the contractors believed the VECP contract had given FDOT a license to practice the inventions recited in the two patents. Erol Clay McGonagill, Jr., FDOT's special counsel for construction claims, testified that "[w]hen we got the VECP it was fully understood that we were going to incorporate this design into the remainder of our projects. It was not only the reasonable thing to do, it was exactly what the VECP spec provided for us, and State Paving knew that because they had been involved in our project for a long time." Because the contractors had a substantial defense to infringement, the trial court correctly concluded that State Contracting could not prove by clear and convincing evidence that the contractors had no reasonable belief that they were not infringing.

State Contracting argues that the district court should have denied the contractors' Rule 50 motion on willfulness because the contractors failed to produce and rely on a written opinion of counsel. In addition, State Contracting contends that because at trial the contractors did not rely on the opinion of FDOT's in-house counsel as to the effect of the VECP agreement, it should be inferred that the opinion was adverse to the contractors' interests.

While we have stated that due care is often achieved by seeking the advice of competent counsel and receiving exculpatory advice, *Vulcan Eng'g Co., Inc. v. Fata Aluminium, Inc.*, 278 F.3d 1366, 1378 (Fed.Cir.2002), we have not held that obtaining the advice of counsel is the only means to avoid a finding of willfulness, regardless of the circumstances. See *Kloster Speedsteel, AB v. Crucible, Inc.*, 793 F.2d 1565, 1579 (Fed.Cir.1986) ("[N]ot every failure to seek an opinion of competent counsel will mandate an ultimate finding of willfulness."). In the circumstances of this case, it was reasonable for the contractors not to seek the advice of counsel. This is not a case in which the contractors concluded, without seeking the advice of counsel, that their actions fell outside the scope of the patents or that the patents were invalid. Instead, FDOT made a specific representation that it had a license to practice the invention, and it incorporated the invention in the contract specifications, thus requiring the contractors ***1065**

(Cite as: 346 F.3d 1057, *1065)

to use the patented process. It was not unreasonable for the contractors to rely on FDOT's representation without seeking the advice of counsel to confirm the accuracy of that representation. As for the contractors' failure to rely at trial on the opinion of FDOT's counsel, there is no evidence that the contractors were even aware of the existence of the opinion. Accordingly, no adverse inference can be drawn from the contractors' failure to introduce evidence regarding the contents of that opinion. Because it was reasonable for the contractors to conclude that they were

licensed to practice the VECP design, and because they had no obligation to introduce evidence regarding the advice of FDOT's counsel, we uphold the district court's ruling on the willfulness issue. [FN*]

FN* These circumstances distinguish this case from *Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 344 F.3d 1336 (Fed.Cir.2003), in which the court has recently granted *en banc* review to address issues relating to the relationship between the advice of counsel and willfulness. It is therefore unnecessary to suspend disposition of this case pending that decision.

IV. Laches

The contractors initially raised four affirmative defenses: laches, equitable estoppel, implied license, and acquiescence and consent. The trial judge submitted only the latter two to the jury. The judge granted State Contracting's Rule 50 motion to dismiss the equitable estoppel defense because he deemed that defense duplicative of the acquiescence and consent defense. Later in the same hearing, the judge stated that he had also granted a Rule 50 motion on laches, although he did not explain his reasons for rejecting that defense.

The contractors assume that the district court rejected the laches defense because the court believed that defense was duplicative of the other affirmative defenses the contractors raised at trial. Based on that assumption, they argue that the district court should not have rejected their laches defense because laches, unlike the other defenses raised at trial, does not require an affirmative act by the plaintiff other than delay in filing suit. See *A.C. Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1041 (Fed.Cir.1992) (*en banc*) ("laches focuses on the reasonableness of the plaintiff's delay in suit ... [while] equitable estoppel focuses on what the defendant has been led to reasonably believe from the plaintiff's conduct"; equitable estoppel requires misrepresentation by the plaintiff and reliance on the misrepresentation by the alleged infringer).

KC

[6] State Contracting argues that we should affirm the trial court's ruling on laches because the contractors failed to present any evidence of material prejudice, which is an element of laches. To successfully invoke laches, a defendant must prove that the plaintiff delayed filing suit an unreasonable and inexcusable length of time after the plaintiff knew or reasonably should have known of its claim against the defendant and that the delay resulted in material prejudice to the defendant. *Gasser Chair Co., Inc. v. Infant Chair Mfg. Corp.*, 60 F.3d 770, 773 (Fed.Cir.1995). Once those factual premises are established, the court weighs the equities in order to assess whether laches should apply to bar those damages that accrued prior to suit. See *Advanced Cardiovascular Sys., Inc. v. SciMed Life Sys., Inc.*, 988 F.2d 1157, 1161 (Fed.Cir.1993); *Aukerman*, 960 F.2d at 1041.

Because the period of delay in this case was less than six years, prejudice is not presumed. See *Aukerman*, 960 F.2d at 1035-36. The earliest that an infringement ***1066**

(Cite as: 346 F.3d 1057, *1066)

suit could have been brought was the '288 patent's issuance date, which was approximately four years before suit was actually filed. See *Meyers v. Asics Corp.*, 974 F.2d 1304, 1307 (Fed.Cir.1992) (laches period does not begin to run until the patent issues). Accordingly, in order to establish their defense of laches, the contractors had to prove that the delay materially prejudiced them.

KC

[7] We have stated that material prejudice may be either economic or evidentiary. *Aukerman*, 960 F.2d at 1033. The contractors do not allege evidentiary prejudice, so the prejudice inquiry in this case is directed solely to economic prejudice. Economic prejudice arises when a defendant suffers the loss of monetary investments or incurs damages that likely would have been prevented by earlier suit. *Id.* A nexus must be shown between the patentee's delay in filing suit and the expenditures; the alleged infringer must change his position "because of and as a result of the delay." *Hemstreet v. Computer Entry Sys. Corp.*, 972 F.2d 1290, 1294 (Fed.Cir.1992); see also *Gasser Chair*, 60 F.3d at 775 ("We reiterate that a change in the economic position of the infringer during the period of delay must be as a result of the delay; the infringer must prove that the change in economic position would not have occurred had the patentee sued earlier.").

KC

[8] The contractors contend that they were prejudiced because, as a result of the delay in filing suit, FDOT continued to incorporate the invention from the VECP into bids and contracts with them. If State Paving had promptly notified FDOT of the patent, the contractors argue, FDOT and the contractors could have avoided the controversy entirely simply by changing the soundwall specifications or returning to the original design. The contractors point to testimony by Mr. McGonagill, FDOT's special counsel, who said that State Paving was aware that it was FDOT's practice to incorporate VECP improvements in future projects. They also point to his testimony that FDOT may not have agreed to the VECP in the first place if it had known that State Paving intended to seek patent protection for the invention.

The evidence adduced by the contractors does not establish the kind of prejudice that is required to support a finding of laches. Firs

West Reporter Image (PDF)

(Cite as: 977 F.2d 1555)

977 F.2d 1555, 1992 Copr.L.Dec. P 26,997, 24 U.S.P.Q.2d 1401

United States Court of Appeals,
Federal Circuit.BROOKTREE CORPORATION, Plaintiff/Cross-Appellant,
v.ADVANCED MICRO DEVICES, INC., Defendant/Appellant.
Nos. 91-1258, 91-1259.

Oct. 9, 1992.

Rehearing Denied; Suggestion for
Rehearing In Banc Declined
Jan. 4, 1993.

Manufacturer of semiconductor chips brought action against competitor for patent infringement and mask work registration infringement under Semiconductor Chip Protection Act. The United States District Court for the Southern District of California, William B. Enright, J., 757 F.Supp. 1088, entered judgment that patents were valid and infringed and that registered mask works were infringed. Competitor appealed and manufacturer cross-appealed. The Court of Appeals, Pauline Newman, Circuit Judge, held that: (1) entire chip need not be copied to find infringement of mask registrations under Act; (2) mask registrations were infringed by competitor's chips, despite competitor's claims of reverse engineering; (3) patents were valid; (4) patent directed to circuitry in manufacturer's chip products was infringed by competitor's chips; and (5) manufacturer's price reductions were properly included in calculation of damages.

Affirmed.

West Headnotes

[1] KeyCite Notes⇒ 106 Courts⇒ 106II Establishment, Organization, and Procedure⇒ 106II(G) Rules of Decision⇒ 106k88 Previous Decisions as Controlling or as Precedents⇒ 106k96 Decisions of United States Courts as Authority in Other United States Courts⇒ 106k96(7) k. Particular Questions or Subject Matter. Most Cited Cases

Appellate jurisdiction of United States Court of Appeals for the Federal Circuit under Semiconductor Chip Protection Act was pendent, and thus for issues of fact and law under Act, Federal Circuit would apply discernable law of Ninth Circuit on appeal from determination of federal district court within Ninth Circuit. 17 U.S.C.A. §§ 901-914.

[2] KeyCite Notes⇒ 291 Patents⇒ 291I Subjects of Patents⇒ 291k4 Arts⇒ 291k7.14 k. Particular Processes or Methods as Constituting Invention. Most Cited Cases

Electronic circuitry and electronic components are within statutory subject matter of patentable invention, and some original circuitry may be patentable if it also meets requirements of Patent Act. 35 U.S.C.A. § 101.

[3] KeyCite Notes

☞ 99 Copyrights and Intellectual Property

☞ 99I Copyrights

☞ 99I(A) Nature and Subject Matter

☞ 99k2 k. Constitutional and Statutory Provisions. Most Cited Cases

While some copyright principles underly Semiconductor Chip Protection Act, as do some attributes of patent law, Act was uniquely adapted to semiconductor mask works, in order to achieve appropriate protection for original designs while meeting competitive needs of industry and serving the public interest. 17 U.S.C.A. §§ 901-914.



[4] KeyCite Notes

☞ 99 Copyrights and Intellectual Property

☞ 99I Copyrights

☞ 99I(J) Infringement

☞ 99I(J)1 What Constitutes Infringement

☞ 99k67.2 k. Sound Recordings. Most Cited Cases

While Semiconductor Chip Protection Act does not use word "copy" to describe infringement, its parallel language to that in Copyright Act reflects incorporation of well-explicated copyright principle of substantial similarity. 17 U.S.C.A. §§ 106, 901(a)(9), 905.



[5] KeyCite Notes

☞ 99 Copyrights and Intellectual Property

☞ 99I Copyrights

☞ 99I(J) Infringement

☞ 99I(J)1 What Constitutes Infringement

☞ 99k53 Acts Constituting Infringement

☞ 99k53(1) k. In General. Most Cited Cases

(Formerly 99k53)

Principle of "substantial similarity" recognizes that existence of differences between accused and copyrighted work may not negate infringement if material portion of copyrighted work is appropriated. 17 U.S.C.A. § 106.



[6] KeyCite Notes

☞ 99 Copyrights and Intellectual Property

☞ 99I Copyrights

☞ 99I(J) Infringement

☞ 99I(J)1 What Constitutes Infringement

☞ 99k53 Acts Constituting Infringement

☞ 99k53(1) k. In General. Most Cited Cases

(Formerly 99k53)

If copied portion of copyrighted work is qualitatively important, finder of fact may properly find "substantial similarity" under copyright law. 17 U.S.C.A. § 106.



[7] KeyCite Notes

☞ 99 Copyrights and Intellectual Property

☞ 99I Copyrights

☞ 99I(J) Infringement

☞ 99I(J)1 What Constitutes Infringement

☞ 99k67.3 k. Other Works. Most Cited Cases

If copied portion of mask work is qualitatively important, finder of fact may properly find "substantial similarity" under Semiconductor Chip Protection Act. 17 U.S.C.A. §§ 901(a)(9), 905.



[8] KeyCite Notes

☞ 99 Copyrights and Intellectual Property
 ☞ 99I Copyrights
 ☞ 99I(J) Infringement
 ☞ 99I(J)1 What Constitutes Infringement
 ☞ 99k67.3 k. Other Works. Most Cited Cases

Infringement under Semiconductor Chip Protection Act does not require that all parts of accused chip be copied. 17 U.S.C.A. §§ 901(a)(9), 905.



[9] KeyCite Notes

☞ 99 Copyrights and Intellectual Property
 ☞ 99I Copyrights
 ☞ 99I(J) Infringement
 ☞ 99I(J)1 What Constitutes Infringement
 ☞ 99k67.3 k. Other Works. Most Cited Cases

Whether appropriation of cell layout constitutes infringement under Semiconductor Chip Protection Act in a particular case is for trier of fact, and cannot be decided as matter of law. 17 U.S.C.A. §§ 901(a)(9), 905.



[10] KeyCite Notes

☞ 99 Copyrights and Intellectual Property
 ☞ 99I Copyrights
 ☞ 99I(J) Infringement
 ☞ 99I(J)1 What Constitutes Infringement
 ☞ 99k67.3 k. Other Works. Most Cited Cases

One engaged in reverse engineering is not liable for infringement under Semiconductor Chip Protection Act when end product is itself original. 17 U.S.C.A. § 906(a).



[11] KeyCite Notes

☞ 99 Copyrights and Intellectual Property
 ☞ 99I Copyrights
 ☞ 99I(J) Infringement
 ☞ 99I(J)1 What Constitutes Infringement
 ☞ 99k67.3 k. Other Works. Most Cited Cases

In performing reverse engineering under Semiconductor Chip Protection Act, person may disassemble, study, and analyze existing chip in order to understand it, and that knowledge may be used to create original chip having different design layout, but which performs the same or equivalent function as existing chip, without penalty or prohibition. 17 U.S.C.A. § 906(a).



[12] KeyCite Notes

☞ 99 Copyrights and Intellectual Property

- ↳ 99I Copyrights
- ↳ 99I(J) Infringement
- ↳ 99I(J)2 Remedies
- ↳ 99k72 Actions for Infringement
- ↳ 99k83 Evidence
- ↳ 99k83(3) Weight and Sufficiency
- ↳ 99k83(7) k. Other Works. Most Cited Cases

Jury had sufficient evidentiary basis for finding infringement of mask work registrations under Semiconductor Chip Protection Act for chips embodying a circuit design that combined function of a static random access memory (SRAM) and a digital to analog converter (DAC) and acting as "color palette," and for rejecting competitor's reverse engineering defense. 17 U.S.C.A. § 906(a).



[13] KeyCite Notes

- ↳ 170B Federal Courts
- ↳ 170BVIII Courts of Appeals
- ↳ 170BVIII(K) Scope, Standards, and Extent
- ↳ 170BVIII(K)1 In General
- ↳ 170Bk763 Extent of Review Dependent on Nature of DecisionAppealed from
- ↳ 170Bk764 k. Taking Case from Jury. Most Cited Cases

Standard of review with respect to motion for judgment as a matter of law is whether there was legally sufficient evidence whereby reasonable jury could have reached the verdict actually reached. Fed.Rules Civ.Proc.Rule 50(a) (1), 28 U.S.C.A.



[14] KeyCite Notes

- ↳ 170A Federal Civil Procedure
- ↳ 170AXV Trial
- ↳ 170AXV(F) Taking Case or Question from Jury
- ↳ 170AXV(F)1 In General
- ↳ 170Ak2114 Nature and Form of Remedy
- ↳ 170Ak2117 k. Direction of Verdict. Most Cited Cases



- ↳ 170A Federal Civil Procedure KeyCite Notes
- ↳ 170AXVII Judgment
- ↳ 170AXVII(E) Notwithstanding Verdict
- ↳ 170Ak2601 k. In General. Most Cited Cases



- ↳ 170B Federal Courts KeyCite Notes
- ↳ 170BVIII Courts of Appeals
- ↳ 170BVIII(K) Scope, Standards, and Extent
- ↳ 170BVIII(K)1 In General
- ↳ 170Bk763 Extent of Review Dependent on Nature of DecisionAppealed from
- ↳ 170Bk764 k. Taking Case from Jury. Most Cited Cases

Change in name of motions for judgment notwithstanding the verdict and for directed verdict to motions for judgment as a matter of law was made in order to emphasize correlation in standards for grant of those motions as well as motions for summary judgment, and was not intended to change existing standard of review. Fed.Rules Civ.Proc.Rules 50, 56, 28 U.S.C.A.



[15] KeyCite Notes

☞ 170B Federal Courts☞ 170BVIII Courts of Appeals☞ 170BVIII(K) Scope, Standards, and Extent☞ 170BVIII(K)5 Questions of Fact, Verdicts and Findings☞ 170Bk844 k. Credibility of Witnesses in General. Most Cited Cases

Issues of credibility of witnesses are for jury and are not amenable to appellate review.



[16] KeyCite Notes

☞ 170B Federal Courts☞ 170BVIII Courts of Appeals☞ 170BVIII(K) Scope, Standards, and Extent☞ 170BVIII(K)5 Questions of Fact, Verdicts and Findings☞ 170Bk847 k. Verdicts in General. Most Cited Cases

Jury's verdict must stand when there was sufficient evidence to support verdict in light of entire record, and upon correct or unobjectionable instructions of law.



[17] KeyCite Notes

☞ 170B Federal Courts☞ 170BVIII Courts of Appeals☞ 170BVIII(K) Scope, Standards, and Extent☞ 170BVIII(K)5 Questions of Fact, Verdicts and Findings☞ 170Bk843 k. Inferences from Evidence. Most Cited Cases

Reversal of jury verdict is proper only if evidence permits only one reasonable conclusion.



[18] KeyCite Notes

☞ 170A Federal Civil Procedure☞ 170AXV Trial☞ 170AXV(G) Instructions☞ 170Ak2182 Construction and Effect of Charge as a Whole☞ 170Ak2182.1 k. In General. Most Cited Cases

(Formerly 170A_k2182)

Correctness of jury instruction is question of law and, if objection to instruction was timely made at trial, it is reviewed on appeal to determine whether, on the whole, instructions were adequate to ensure that jury fully understood legal issues for each element of case.



[19] KeyCite Notes

☞ 99 Copyrights and Intellectual Property☞ 99I Copyrights☞ 99I(A) Nature and Subject Matter☞ 99k2 k. Constitutional and Statutory Provisions. Most Cited Cases

Semiconductor Chip Protection Act does not reflect intent to excuse copying, as matter of law, if copier had first tried and failed to do the job without copying. 17 U.S.C.A. § 906(a).

[20] KeyCite Notes

99 Copyrights and Intellectual Property

99I Copyrights

99I(J) Infringement

99I(J)2 Remedies

99k72 Actions for Infringement

99k83 Evidence

99k83(3) Weight and Sufficiency

99k83(7) k. Other Works. Most Cited Cases

Paper trail showing reverse engineering, although evidence of independent effort, is not conclusive or incontrovertible proof of either originality or absence of copying in infringement action brought under Semiconductor Chip Protection Act. 17 U.S.C.A. § 906(a).

[21] KeyCite Notes

99 Copyrights and Intellectual Property

99I Copyrights

99I(J) Infringement

99I(J)2 Remedies

99k72 Actions for Infringement

99k88 k. Trial. Most Cited Cases

When evidence is such that reasonable minds could draw different conclusions as to issues of originality and copying in infringement action brought under Semiconductor Chip Protection Act, such questions are province of jury. 17 U.S.C.A. § 906(a).

[22] KeyCite Notes

170A Federal Civil Procedure

170AXVII Judgment

170AXVII(E) Notwithstanding Verdict

170Ak2601 k. In General. Most Cited Cases

Grant of judgment as a matter of law, by trial judge or by appellate court, is appropriate only when evidence, with inferences drawn favorably to party with verdict, could not reasonably support verdict. Fed. Rules Civ. Proc. Rule 50, 28 U.S.C.A.

[23] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k312 Evidence

291k312(3) Weight and Sufficiency

291k312(5) k. Particular Patents. Most Cited Cases

Substantial evidence allowed jury to find that patent, relating to portion of digital to analog conversion circuitry in semiconductor chip that allowed operation at high frequencies without "glitch" errors under variable operating conditions, was valid and did not fail to meet utility and enablement requirements of Patent Act. 35 U.S.C.A. §§ 101, 112.

[24] KeyCite Notes

↳ 291 Patents

↳ 291II Patentability

↳ 291II(C) Utility

↳ 291k46 k. Nature and Necessity of Patentable Utility. Most Cited Cases

↳ 291 Patents KeyCite Notes

↳ 291IV Applications and Proceedings Thereon

↳ 291k99 k. Description of Invention in Specification. Most Cited Cases

If claimed subject matter of patent is inoperable, patent may be invalid for failure to meet utility and enablement requirements. 35 U.S.C.A. §§ 101, 112.

[25] KeyCite Notes

↳ 291 Patents

↳ 291II Patentability

↳ 291II(C) Utility

↳ 291k47 k. Capacity to Produce Result. Most Cited Cases

↳ 291 Patents KeyCite Notes

↳ 291XII Infringement

↳ 291XII(C) Suits in Equity

↳ 291k314 Hearing

↳ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

To violate utility requirement for patent validity, claimed device must be totally incapable of achieving useful result, which is determination of fact. 35 U.S.C.A. § 101.

[26] KeyCite Notes

↳ 170B Federal Courts

↳ 170BVIII Courts of Appeals

↳ 170BVIII(K) Scope, Standards, and Extent

↳ 170BVIII(K)5 Questions of Fact, Verdicts and Findings

↳ 170Bk855 Particular Actions and Proceedings, Verdicts and Findings

↳ 170Bk860 k. Copyrights, Patents and Trade Regulation. Most Cited Cases

Court of Appeals would review trial proceedings to ascertain whether there was substantial evidence whereby reasonable jury could have reached verdict that patent had not been proved invalid based on asserted inoperability of invention. 35 U.S.C.A. § 101.

[27] KeyCite Notes

↳ 106 Courts

↳ 106II Establishment, Organization, and Procedure

↳ 106II(G) Rules of Decision

↳ 106k88 Previous Decisions as Controlling or as Precedents

↳ 106k96 Decisions of United States Courts as Authority in Other United States Courts

↳ 106k96(5) k. Decisions in Other Circuits. Most Cited Cases

United States Court of Appeals for the Federal Circuit follows procedural law of regional circuit in which case was tried as to the trial and review of jury verdicts, in order to avoid uncertainty among litigants and unnecessary burdens on trial courts.

[28] KeyCite Notes



- ↳ 170A Federal Civil Procedure
 - ↳ 170AXV Trial
 - ↳ 170AXV(G) Instructions
 - ↳ 170Ak2171 k. In General. Most Cited Cases

Unchallenged jury instructions state the law to be applied on review of jury verdict.

[29] KeyCite Notes



- ↳ 157 Evidence
 - ↳ 157IV Admissibility in General
 - ↳ 157IV(E) Competency
 - ↳ 157k150 k. Results of Experiments. Most Cited Cases

In ascertaining the truth when evidence is primarily scientific, as for other kinds of evidence, trier of fact must make determinations of credibility, reliability, and weight.

[30] KeyCite Notes



- ↳ 291 Patents
 - ↳ 291V Requisites and Validity of Letters Patent
 - ↳ 291k118.12 Nature of Patent and Condition of Art
 - ↳ 291k118.12(10) k. Miscellaneous Patents. Most Cited Cases
(Formerly 291k118.20)

Patent for dual port ten-transistor static random access memory (SRAM) core cell with two-stage sense amplifier used in semiconductor chips was valid.

[31] KeyCite Notes



- ↳ 291 Patents
 - ↳ 291XII Infringement
 - ↳ 291XII(C) Suits in Equity
 - ↳ 291k314 Hearing
 - ↳ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

Reasonable jury could have concluded that addition of "for video display" in claims during prosecution before patent office for patent covering static random access memory (SRAM) cell used in semiconductor chips was not "new matter" that should not have been accepted by patent examiner. 35 U.S.C.A. § 132.

[32] KeyCite Notes



- ↳ 291 Patents
 - ↳ 291XII Infringement
 - ↳ 291XII(C) Suits in Equity
 - ↳ 291k324 Appeal

291k324.5 k. Scope and Extent of Review in General. Most Cited Cases



291 Patents KeyCite Notes

291XII Infringement

291XII(C) Suits in Equity

291k324 Appeal

291k324.55 Questions of Fact, Verdicts, and Findings

291k324.55(1) k. In General. Most Cited Cases

In reviewing jury's determination that addition to claims during prosecution before patent office was not "new matter" that should not have been accepted by patent examiner, Court of Appeals would not exercise de novo review, but rather its proper role was to review whether jury reasonably applied the law, as explained in the instructions, to the particular facts of the case. 35 U.S.C.A. § 132.



[33] KeyCite Notes

291 Patents

291IX Construction and Operation of Letters Patent

291IX(B) Limitation of Claims

291k168 Proceedings in Patent Office in General

291k168(2) Rejection and Amendment of Claims

291k168(2.2) k. Voluntary or Unnecessary Amendment or Cancellation. Most Cited Cases
(Formerly 291k168(21/4))

Whether particular technological information is "new matter" that should not be accepted by patent examiner depends upon nature of disclosure, state of the art, and nature of added matter. 35 U.S.C.A. § 132.



[34] KeyCite Notes

291 Patents

291IV Applications and Proceedings Thereon

291k112 Conclusiveness and Effect of Decisions of Patent Office

291k112.1 k. In General. Most Cited Cases

Patent is presumed valid, which presumption is based in part on expertise of patent examiners presumed to have done their job. 35 U.S.C.A. § 282.



[35] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k312 Evidence

291k312(3) Weight and Sufficiency

291k312(6) k. Particular Matters, Sufficiency as To. Most Cited Cases

Substantial evidence allowed jury to find that "best mode" requirement had been met with respect to patent covering static random access memory (SRAM) cell used in semiconductor chips, even though patent did not initially contain term "for video display" until added during prosecution before patent office.



[36] KeyCite Notes

291 Patents

↳ 291IX Construction and Operation of Letters Patent

↳ 291IX(B) Limitation of Claims

↳ 291k168 Proceedings in Patent Office in General

↳ 291k168(2) Rejection and Amendment of Claims

↳ 291k168(2.6) k. Extent of Estoppel as Affected by Examiner's Objections or References. Most Cited

Cases

(Formerly 291k168(23/4))

Patent examiner's request that "video display" application be expressly stated in claims for patent covering static random access memory (SRAM) cell used in semiconductor chips, and patent holder's compliance therewith, was not probative evidence of concealment of that application which would preclude finding that "best mode" requirement had been met.



[37] KeyCite Notes

↳ 291 Patents

↳ 291IV Applications and Proceedings Thereon

↳ 291k99 k. Description of Invention in Specification. Most Cited Cases

Invalidity of patent for violation of "best mode" requires intentional concealment of better mode than was disclosed.



[38] KeyCite Notes

↳ 291 Patents

↳ 291IV Applications and Proceedings Thereon

↳ 291k99 k. Description of Invention in Specification. Most Cited Cases

That which is included in issued patent is, ipso facto, not concealed, for purpose of rule that invalidity of patent for violation of best mode requirement requires intentional concealment of better mode than was disclosed.



[39] KeyCite Notes

↳ 170B Federal Courts

↳ 170BVIII Courts of Appeals

↳ 170BVIII(D) Presentation and Reservation in Lower Court of Grounds of Review

↳ 170BVIII(D)1 Issues and Questions in Lower Court

↳ 170Bk611 k. Necessity of Presentation in General. Most Cited Cases

Appellate court may, in order to avoid injustice, elect to entertain arguments or consider issues raised for first time on appeal.



[40] KeyCite Notes

↳ 291 Patents

↳ 291XII Infringement

↳ 291XII(C) Suits in Equity

↳ 291k324 Appeal

↳ 291k324.60 k. Determination and Disposition of Cause. Most Cited Cases

Issues as to adequacy of patent's written description or enablement were mooted by determination on appeal that there was sufficient evidence for jury to find that "new matter" constraint had not been violated.



[41] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k312 Evidence

291k312(3) Weight and Sufficiency

291k312(5) k. Particular Patents. Most Cited Cases

Substantial evidence allowed jury to find that patent for circuit that provided constant voltage output for biasing certain transistors in a digital to analog conversion circuit, such that transistors were activated only in accordance with digital input signal, was infringed by competitor's semiconductor chips.



[42] KeyCite Notes

99 Copyrights and Intellectual Property

99I Copyrights

99I(J) Infringement

99I(J)2 Remedies

99k72 Actions for Infringement

99k88 k. Trial. Most Cited Cases

291 Patents KeyCite Notes

291XII Infringement

291XII(C) Suits in Equity

291k314 Hearing

291k314(5) k. Questions of Law or Fact. Most Cited Cases

Measure of actual damages for infringement of patent and for infringement of mask registrations under Semiconductor Chip Protection Act is question of fact, including question of whether competitor's premarketing activities caused financial losses to holder of patent and registrations. 17 U.S.C.A. § 911(b).



[43] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k319 Damages

291k319(1) k. In General. Most Cited Cases

In patent cases, damages are measured by inquiring as to what would have been the financial position of person wronged had infringer not committed the wrong.



[44] KeyCite Notes

99 Copyrights and Intellectual Property

99I Copyrights

99I(J) Infringement

99I(J)2 Remedies

99k72 Actions for Infringement

99k87 Damages and Profits

99k87(2) k. Elements, Measure, and Amount. Most Cited Cases

291 Patents KeyCite Notes



- 291XII Infringement

- 291XII(C) Suits in Equity

- 291k319 Damages

- 291k319(1) k. In General. Most Cited Cases

Losses incurred by holder of mask registrations under Semiconductor Chip Protection Act and patents upon announcement by competitor of infringing activity may be included when awarding damages to holder, if losses are found to be reasonably related to infringing activity. 17 U.S.C.A. § 911(b).

[45] KeyCite Notes

- 99 Copyrights and Intellectual Property

- 99I Copyrights

- 99I(J) Infringement

- 99I(J)2 Remedies

- 99k72 Actions for Infringement

- 99k87 Damages and Profits

- 99k87(2) k. Elements, Measure, and Amount. Most Cited Cases



- 291 Patents KeyCite Notes

- 291XII Infringement

- 291XII(C) Suits in Equity

- 291k319 Damages

- 291k319(1) k. In General. Most Cited Cases

Legally sufficient evidentiary basis allowed jury to conclude that price reductions by holder of mask registrations under Semiconductor Chip Protection Act and patents were made as result of competitor's actual and announced marketing of infringing chips, and therefore jury properly included those price reductions in calculation of damages. 17 U.S.C.A. § 911(b).

[46] KeyCite Notes

West Reporter Image (PDF)

(Cite as: 977 F.2d 1555)

977 F.2d 1555, 1992 Copr.L.Dec. P 26,997, 24 U.S.P.Q.2d 1401

United States Court of Appeals,
Federal Circuit.BROOKTREE CORPORATION, Plaintiff/Cross-Appellant,
v.ADVANCED MICRO DEVICES, INC., Defendant/Appellant.
Nos. 91-1258, 91-1259.

Oct. 9, 1992.

Rehearing Denied; Suggestion for
Rehearing In Banc Declined
Jan. 4, 1993.

Manufacturer of semiconductor chips brought action against competitor for patent infringement and mask work registration infringement under Semiconductor Chip Protection Act. The United States District Court for the Southern District of California, William B. Enright, J., 757 F.Supp. 1088, entered judgment that patents were valid and infringed and that registered mask works were infringed. Competitor appealed and manufacturer cross-appealed. The Court of Appeals, Pauline Newman, Circuit Judge, held that: (1) entire chip need not be copied to find infringement of mask registrations under Act; (2) mask registrations were infringed by competitor's chips, despite competitor's claims of reverse engineering; (3) patents were valid; (4) patent directed to circuitry in manufacturer's chip products was infringed by competitor's chips; and (5) manufacturer's price reductions were properly included in calculation of damages.

Affirmed.

West Headnotes

[1] KeyCite Notes⇒ 106 Courts⇒ 106II Establishment, Organization, and Procedure⇒ 106II(G) Rules of Decision⇒ 106k88 Previous Decisions as Controlling or as Precedents⇒ 106k96 Decisions of United States Courts as Authority in Other United States Courts⇒ 106k96(7) k. Particular Questions or Subject Matter. Most Cited Cases

Appellate jurisdiction of United States Court of Appeals for the Federal Circuit under Semiconductor Chip Protection Act was pendent, and thus for issues of fact and law under Act, Federal Circuit would apply discernable law of Ninth Circuit on appeal from determination of federal district court within Ninth Circuit. 17 U.S.C.A. §§ 901-914.

[2] KeyCite Notes⇒ 291 Patents⇒ 291I Subjects of Patents⇒ 291k4 Arts⇒ 291k7.14 k. Particular Processes or Methods as Constituting Invention. Most Cited Cases

Electronic circuitry and electronic components are within statutory subject matter of patentable invention, and some original circuitry may be patentable if it also meets requirements of Patent Act. 35 U.S.C.A. § 101.

[3] KeyCite Notes

↳ 99 Copyrights and Intellectual Property

↳ 99I Copyrights

↳ 99I(A) Nature and Subject Matter

↳ 99k2 k. Constitutional and Statutory Provisions. Most Cited Cases

While some copyright principles underly Semiconductor Chip Protection Act, as do some attributes of patent law, Act was uniquely adapted to semiconductor mask works, in order to achieve appropriate protection for original designs while meeting competitive needs of industry and serving the public interest. 17 U.S.C.A. §§ 901-914.



[4] KeyCite Notes

↳ 99 Copyrights and Intellectual Property

↳ 99I Copyrights

↳ 99I(J) Infringement

↳ 99I(J)1 What Constitutes Infringement

↳ 99k67.2 k. Sound Recordings. Most Cited Cases

While Semiconductor Chip Protection Act does not use word "copy" to describe infringement, its parallel language to that in Copyright Act reflects incorporation of well-explicated copyright principle of substantial similarity. 17 U.S.C.A. §§ 106, 901(a)(9), 905.



[5] KeyCite Notes

↳ 99 Copyrights and Intellectual Property

↳ 99I Copyrights

↳ 99I(J) Infringement

↳ 99I(J)1 What Constitutes Infringement

↳ 99k53 Acts Constituting Infringement

↳ 99k53(1) k. In General. Most Cited Cases

(Formerly 99k53)

Principle of "substantial similarity" recognizes that existence of differences between accused and copyrighted work may not negate infringement if material portion of copyrighted work is appropriated. 17 U.S.C.A. § 106.



[6] KeyCite Notes

↳ 99 Copyrights and Intellectual Property

↳ 99I Copyrights

↳ 99I(J) Infringement

↳ 99I(J)1 What Constitutes Infringement

↳ 99k53 Acts Constituting Infringement

↳ 99k53(1) k. In General. Most Cited Cases

(Formerly 99k53)

If copied portion of copyrighted work is qualitatively important, finder of fact may properly find "substantial similarity" under copyright law. 17 U.S.C.A. § 106.



[7] KeyCite Notes

↳ 99 Copyrights and Intellectual Property

↳ 99I Copyrights

↳ 99I(J) Infringement

↳ 99I(J)1 What Constitutes Infringement

↳ 99k67.3 k. Other Works. Most Cited Cases

If copied portion of mask work is qualitatively important, finder of fact may properly find "substantial similarity" under Semiconductor Chip Protection Act. 17 U.S.C.A. §§ 901(a)(9), 905.

[8] KeyCite Notes



☞ 99 Copyrights and Intellectual Property

☞ 99I Copyrights

☞ 99I(J) Infringement

☞ 99I(J)1 What Constitutes Infringement

☞ 99k67.3 k. Other Works. Most Cited Cases

Infringement under Semiconductor Chip Protection Act does not require that all parts of accused chip be copied. 17 U.S.C.A. §§ 901(a)(9), 905.

[9] KeyCite Notes



☞ 99 Copyrights and Intellectual Property

☞ 99I Copyrights

☞ 99I(J) Infringement

☞ 99I(J)1 What Constitutes Infringement

☞ 99k67.3 k. Other Works. Most Cited Cases

Whether appropriation of cell layout constitutes infringement under Semiconductor Chip Protection Act in a particular case is for trier of fact, and cannot be decided as matter of law. 17 U.S.C.A. §§ 901(a)(9), 905.

[10] KeyCite Notes



☞ 99 Copyrights and Intellectual Property

☞ 99I Copyrights

☞ 99I(J) Infringement

☞ 99I(J)1 What Constitutes Infringement

☞ 99k67.3 k. Other Works. Most Cited Cases

One engaged in reverse engineering is not liable for infringement under Semiconductor Chip Protection Act when end product is itself original. 17 U.S.C.A. § 906(a).

[11] KeyCite Notes



☞ 99 Copyrights and Intellectual Property

☞ 99I Copyrights

☞ 99I(J) Infringement

☞ 99I(J)1 What Constitutes Infringement

☞ 99k67.3 k. Other Works. Most Cited Cases

In performing reverse engineering under Semiconductor Chip Protection Act, person may disassemble, study, and analyze existing chip in order to understand it, and that knowledge may be used to create original chip having different design layout, but which performs the same or equivalent function as existing chip, without penalty or prohibition. 17 U.S.C.A. § 906(a).

[12] KeyCite Notes



☞ 99 Copyrights and Intellectual Property

☞ 99I Copyrights

☞ 99I(J) Infringement

☞ 99I(J)2 Remedies

☞ 99k72 Actions for Infringement

☞ 99k83 Evidence

☞ 99k83(3) Weight and Sufficiency

☞ 99k83(7) k. Other Works. Most Cited Cases

Jury had sufficient evidentiary basis for finding infringement of mask work registrations under Semiconductor Chip Protection Act for chips embodying a circuit design that combined function of a static random access memory (SRAM) and a digital to analog converter (DAC) and acting as "color palette," and for rejecting competitor's reverse engineering defense. 17 U.S.C.A. § 906(a).



[13] KeyCite Notes

☞ 170B Federal Courts

☞ 170BVIII Courts of Appeals

☞ 170BVIII(K) Scope, Standards, and Extent

☞ 170BVIII(K)1 In General

☞ 170Bk763 Extent of Review Dependent on Nature of Decision Appealed from

☞ 170Bk764 k. Taking Case from Jury. Most Cited Cases

Standard of review with respect to motion for judgment as a matter of law is whether there was legally sufficient evidence whereby reasonable jury could have reached the verdict actually reached. Fed.Rules Civ.Proc.Rule 50(a)(1), 28 U.S.C.A.



[14] KeyCite Notes

☞ 170A Federal Civil Procedure

☞ 170AXV Trial

☞ 170AXV(F) Taking Case or Question from Jury

☞ 170AXV(F)1 In General

☞ 170Ak2114 Nature and Form of Remedy

☞ 170Ak2117 k. Direction of Verdict. Most Cited Cases

☞ 170A Federal Civil Procedure KeyCite Notes

☞ 170AXVII Judgment

☞ 170AXVII(E) Notwithstanding Verdict

☞ 170Ak2601 k. In General. Most Cited Cases

☞ 170B Federal Courts KeyCite Notes

☞ 170BVIII Courts of Appeals

☞ 170BVIII(K) Scope, Standards, and Extent

☞ 170BVIII(K)1 In General

☞ 170Bk763 Extent of Review Dependent on Nature of Decision Appealed from

☞ 170Bk764 k. Taking Case from Jury. Most Cited Cases

Change in name of motions for judgment notwithstanding the verdict and for directed verdict to motions for judgment as a matter of law was made in order to emphasize correlation in standards for grant of those motions as well as motions for summary judgment, and was not intended to change existing standard of review. Fed.Rules Civ.Proc.Rules 50, 56, 28 U.S.C.A.



[15] KeyCite Notes

☞ 170B Federal Courts

 ☞ 170BVIII Courts of Appeals

 ☞ 170BVIII(K) Scope, Standards, and Extent

 ☞ 170BVIII(K)5 Questions of Fact, Verdicts and Findings

 ☞ 170Bk844 k. Credibility of Witnesses in General. Most Cited Cases

Issues of credibility of witnesses are for jury and are not amenable to appellate review.



[16] KeyCite Notes

☞ 170B Federal Courts

 ☞ 170BVIII Courts of Appeals

 ☞ 170BVIII(K) Scope, Standards, and Extent

 ☞ 170BVIII(K)5 Questions of Fact, Verdicts and Findings

 ☞ 170Bk847 k. Verdicts in General. Most Cited Cases

Jury's verdict must stand when there was sufficient evidence to support verdict in light of entire record, and upon correct or unobjectionable instructions of law.



[17] KeyCite Notes

☞ 170B Federal Courts

 ☞ 170BVIII Courts of Appeals

 ☞ 170BVIII(K) Scope, Standards, and Extent

 ☞ 170BVIII(K)5 Questions of Fact, Verdicts and Findings

 ☞ 170Bk843 k. Inferences from Evidence. Most Cited Cases

Reversal of jury verdict is proper only if evidence permits only one reasonable conclusion.



[18] KeyCite Notes

☞ 170A Federal Civil Procedure

 ☞ 170AXV Trial

 ☞ 170AXV(G) Instructions

 ☞ 170Ak2182 Construction and Effect of Charge as a Whole

 ☞ 170Ak2182.1 k. In General. Most Cited Cases

(Formerly 170Ak2182)

Correctness of jury instruction is question of law and, if objection to instruction was timely made at trial, it is reviewed on appeal to determine whether, on the whole, instructions were adequate to ensure that jury fully understood legal issues for each element of case.



[19] KeyCite Notes

☞ 99 Copyrights and Intellectual Property

 ☞ 99I Copyrights

 ☞ 99I(A) Nature and Subject Matter

 ☞ 99k2 k. Constitutional and Statutory Provisions. Most Cited Cases

Semiconductor Chip Protection Act does not reflect intent to excuse copying, as matter of law, if copier had first tried and failed to do the job without copying. 17 U.S.C.A. § 906(a).

[20] KeyCite Notes

- ◆ 99 Copyrights and Intellectual Property
 - ◆ 99I Copyrights
 - ◆ 99I(J) Infringement
 - ◆ 99I(J)2 Remedies
 - ◆ 99k72 Actions for Infringement
 - ◆ 99k83 Evidence
 - ◆ 99k83(3) Weight and Sufficiency
 - ◆ 99k83(7) k. Other Works. Most Cited Cases

Paper trail showing reverse engineering, although evidence of independent effort, is not conclusive or incontrovertible proof of either originality or absence of copying in infringement action brought under Semiconductor Chip Protection Act. 17 U.S.C.A. § 906(a).

[21] KeyCite Notes

- ◆ 99 Copyrights and Intellectual Property
 - ◆ 99I Copyrights
 - ◆ 99I(J) Infringement
 - ◆ 99I(J)2 Remedies
 - ◆ 99k72 Actions for Infringement
 - ◆ 99k88 k. Trial. Most Cited Cases

When evidence is such that reasonable minds could draw different conclusions as to issues of originality and copying in infringement action brought under Semiconductor Chip Protection Act, such questions are province of jury. 17 U.S.C.A. § 906(a).

[22] KeyCite Notes

- ◆ 170A Federal Civil Procedure
 - ◆ 170AXVII Judgment
 - ◆ 170AXVII(E) Notwithstanding Verdict
 - ◆ 170Ak2601 k. In General. Most Cited Cases

Grant of judgment as a matter of law, by trial judge or by appellate court, is appropriate only when evidence, with inferences drawn favorably to party with verdict, could not reasonably support verdict. Fed.Rules Civ.Proc.Rule 50, 28 U.S.C.A.

[23] KeyCite Notes

- ◆ 291 Patents
 - ◆ 291XII Infringement
 - ◆ 291XII(C) Suits in Equity
 - ◆ 291k312 Evidence
 - ◆ 291k312(3) Weight and Sufficiency
 - ◆ 291k312(5) k. Particular Patents. Most Cited Cases

Substantial evidence allowed jury to find that patent, relating to portion of digital to analog conversion circuitry in semiconductor chip that allowed operation at high frequencies without "glitch" errors under variable operating conditions, was valid and did not fail to meet utility and enablement requirements of Patent Act. 35 U.S.C.A. §§ 101, 112.

[24] KeyCite Notes



↳ 291 Patents

↳ 291III Patentability

↳ 291III(C) Utility

↳ 291k46 k. Nature and Necessity of Patentable Utility. Most Cited Cases

↳ 291 Patents KeyCite Notes



↳ 291IV Applications and Proceedings Thereon

↳ 291k99 k. Description of Invention in Specification. Most Cited Cases

If claimed subject matter of patent is inoperable, patent may be invalid for failure to meet utility and enablement requirements. 35 U.S.C.A. §§ 101, 112.

[25] KeyCite Notes



↳ 291 Patents

↳ 291III Patentability

↳ 291III(C) Utility

↳ 291k47 k. Capacity to Produce Result. Most Cited Cases

↳ 291 Patents KeyCite Notes



↳ 291XII Infringement

↳ 291XII(C) Suits in Equity

↳ 291k314 Hearing

↳ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

To violate utility requirement for patent validity, claimed device must be totally incapable of achieving useful result, which is determination of fact. 35 U.S.C.A. § 101.

[26] KeyCite Notes



↳ 170B Federal Courts

↳ 170BVIII Courts of Appeals

↳ 170BVIII(K) Scope, Standards, and Extent

↳ 170BVIII(K)5 Questions of Fact, Verdicts and Findings

↳ 170Bk855 Particular Actions and Proceedings, Verdicts and Findings

↳ 170Bk860 k. Copyrights, Patents and Trade Regulation. Most Cited Cases

Court of Appeals would review trial proceedings to ascertain whether there was substantial evidence whereby reasonable jury could have reached verdict that patent had not been proved invalid based on asserted inoperability of invention. 35 U.S.C.A. § 101.

[27] KeyCite Notes



↳ 106 Courts

↳ 106II Establishment, Organization, and Procedure

↳ 106II(G) Rules of Decision

↳ 106k88 Previous Decisions as Controlling or as Precedents

↳ 106k96 Decisions of United States Courts as Authority in Other United States Courts

↳ 106k96(5) k. Decisions in Other Circuits. Most Cited Cases

United States Court of Appeals for the Federal Circuit follows procedural law of regional circuit in which case was tried as to the trial and review of jury verdicts, in order to avoid uncertainty among litigants and unnecessary burdens on trial courts.

[28] KeyCite Notes



- ☞ 170A Federal Civil Procedure
- ☞ 170AXV Trial
- ☞ 170AXV(G) Instructions
- ☞ 170Ak2171 k. In General. Most Cited Cases

Unchallenged jury instructions state the law to be applied on review of jury verdict.

[29] KeyCite Notes



- ☞ 157 Evidence
- ☞ 157IV Admissibility in General
- ☞ 157IV(E) Competency
- ☞ 157k150 k. Results of Experiments. Most Cited Cases

In ascertaining the truth when evidence is primarily scientific, as for other kinds of evidence, trier of fact must make determinations of credibility, reliability, and weight.

[30] KeyCite Notes



- ☞ 291 Patents
- ☞ 291V Requisites and Validity of Letters Patent
- ☞ 291k118.12 Nature of Patent and Condition of Art
- ☞ 291k118.12(10) k. Miscellaneous Patents. Most Cited Cases
(Formerly 291k118.20)

Patent for dual port ten-transistor static random access memory (SRAM) core cell with two-stage sense amplifier used in semiconductor chips was valid.

[31] KeyCite Notes



- ☞ 291 Patents
- ☞ 291XII Infringement
- ☞ 291XII(C) Suits in Equity
- ☞ 291k314 Hearing
- ☞ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

Reasonable jury could have concluded that addition of "for video display" in claims during prosecution before patent office for patent covering static random access memory (SRAM) cell used in semiconductor chips was not "new matter" that should not have been accepted by patent examiner. 35 U.S.C.A. § 132.

[32] KeyCite Notes



- ☞ 291 Patents
- ☞ 291XII Infringement
- ☞ 291XII(C) Suits in Equity
- ☞ 291k324 Appeal

291k324.5 k. Scope and Extent of Review in General. Most Cited Cases



291 Patents KeyCite Notes

291XII Infringement

291XII(C) Suits in Equity

291k324 Appeal

291k324.55 Questions of Fact, Verdicts, and Findings

291k324.55(1) k. In General. Most Cited Cases

In reviewing jury's determination that addition to claims during prosecution before patent office was not "new matter" that should not have been accepted by patent examiner, Court of Appeals would not exercise de novo review, but rather its proper role was to review whether jury reasonably applied the law, as explained in the instructions, to the particular facts of the case. 35 U.S.C.A. § 132.



[33] KeyCite Notes

291 Patents

291IX Construction and Operation of Letters Patent

291IX(B) Limitation of Claims

291k168 Proceedings in Patent Office in General

291k168(2) Rejection and Amendment of Claims

291k168(2.2) k. Voluntary or Unnecessary Amendment or Cancellation. Most Cited Cases

(Formerly 291k168(21/4))

Whether particular technological information is "new matter" that should not be accepted by patent examiner depends upon nature of disclosure, state of the art, and nature of added matter. 35 U.S.C.A. § 132.



[34] KeyCite Notes

291 Patents

291IV Applications and Proceedings Thereon

291k112 Conclusiveness and Effect of Decisions of Patent Office

291k112.1 k. In General. Most Cited Cases

Patent is presumed valid, which presumption is based in part on expertise of patent examiners presumed to have done their job. 35 U.S.C.A. § 282.



[35] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k312 Evidence

291k312(3) Weight and Sufficiency

291k312(6) k. Particular Matters, Sufficiency as To. Most Cited Cases

Substantial evidence allowed jury to find that "best mode" requirement had been met with respect to patent covering static random access memory (SRAM) cell used in semiconductor chips, even though patent did not initially contain term "for video display" until added during prosecution before patent office.



[36] KeyCite Notes

291 Patents

↳ 291IX Construction and Operation of Letters Patent

↳ 291IX(B) Limitation of Claims

↳ 291k168 Proceedings in Patent Office in General

↳ 291k168(2) Rejection and Amendment of Claims

↳ 291k168(2.6) k. Extent of Estoppel as Affected by Examiner's Objections or References. Most Cited

Cases

(Formerly 291k168(23/4))

Patent examiner's request that "video display" application be expressly stated in claims for patent covering static random access memory (SRAM) cell used in semiconductor chips, and patent holder's compliance therewith, was not probative evidence of concealment of that application which would preclude finding that "best mode" requirement had been met.



[37] KeyCite Notes

↳ 291 Patents

↳ 291IV Applications and Proceedings Thereon

↳ 291k99 k. Description of Invention in Specification. Most Cited Cases

Invalidity of patent for violation of "best mode" requires intentional concealment of better mode than was disclosed.



[38] KeyCite Notes

↳ 291 Patents

↳ 291IV Applications and Proceedings Thereon

↳ 291k99 k. Description of Invention in Specification. Most Cited Cases

That which is included in issued patent is, ipso facto, not concealed, for purpose of rule that invalidity of patent for violation of best mode requirement requires intentional concealment of better mode than was disclosed.



[39] KeyCite Notes

↳ 170B Federal Courts

↳ 170BVIII Courts of Appeals

↳ 170BVIII(D) Presentation and Reservation in Lower Court of Grounds of Review

↳ 170BVIII(D)1 Issues and Questions in Lower Court

↳ 170Bk611 k. Necessity of Presentation in General. Most Cited Cases

Appellate court may, in order to avoid injustice, elect to entertain arguments or consider issues raised for first time on appeal.



[40] KeyCite Notes

↳ 291 Patents

↳ 291XII Infringement

↳ 291XII(C) Suits in Equity

↳ 291k324 Appeal

↳ 291k324.60 k. Determination and Disposition of Cause. Most Cited Cases

Issues as to adequacy of patent's written description or enablement were mooted by determination on appeal that there was sufficient evidence for jury to find that "new matter" constraint had not been violated.



[41] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k312 Evidence

291k312(3) Weight and Sufficiency

291k312(5) k. Particular Patents. Most Cited Cases

Substantial evidence allowed jury to find that patent for circuit that provided constant voltage output for biasing certain transistors in a digital to analog conversion circuit, such that transistors were activated only in accordance with digital input signal, was infringed by competitor's semiconductor chips.



[42] KeyCite Notes

99 Copyrights and Intellectual Property

99I Copyrights

99I(J) Infringement

99I(J)2 Remedies

99k72 Actions for Infringement

99k88 k. Trial. Most Cited Cases

291 Patents KeyCite Notes

291XII Infringement

291XII(C) Suits in Equity

291k314 Hearing

291k314(5) k. Questions of Law or Fact. Most Cited Cases

Measure of actual damages for infringement of patent and for infringement of mask registrations under Semiconductor Chip Protection Act is question of fact, including question of whether competitor's premarketing activities caused financial losses to holder of patent and registrations. 17 U.S.C.A. § 911(b).



[43] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k319 Damages

291k319(1) k. In General. Most Cited Cases

In patent cases, damages are measured by inquiring as to what would have been the financial position of person wronged had infringer not committed the wrong.



[44] KeyCite Notes

99 Copyrights and Intellectual Property

99I Copyrights

99I(J) Infringement

99I(J)2 Remedies

99k72 Actions for Infringement

99k87 Damages and Profits

99k87(2) k. Elements, Measure, and Amount. Most Cited Cases

291 Patents KeyCite Notes

↳ 291XII Infringement↳ 291XII(C) Suits in Equity↳ 291k319 Damages↳ 291k319(1) k. In General. Most Cited Cases

Losses incurred by holder of mask registrations under Semiconductor Chip Protection Act and patents upon announcement by competitor of infringing activity may be included when awarding damages to holder, if losses are found to be reasonably related to infringing activity. 17 U.S.C.A. § 911(b).

[45] KeyCite Notes ↳ 99 Copyrights and Intellectual Property↳ 99I Copyrights↳ 99I(J) Infringement↳ 99I(J)2 Remedies↳ 99k72 Actions for Infringement↳ 99k87 Damages and Profits↳ 99k87(2) k. Elements, Measure, and Amount. Most Cited Cases↳ 291 Patents KeyCite Notes ↳ 291XII Infringement↳ 291XII(C) Suits in Equity↳ 291k319 Damages↳ 291k319(1) k. In General. Most Cited Cases

Legally sufficient evidentiary basis allowed jury to conclude that price reductions by holder of mask registrations under Semiconductor Chip Protection Act and patents were made as result of competitor's actual and announced marketing of infringing chips, and therefore jury properly included those price reductions in calculation of damages. 17 U.S.C.A. § 911(b).

[46] KeyCite Notes 

West Reporter Image (PDF)

(Cite as: 977 F.2d 1555) —————

977 F.2d 1555, 1992 Copr.L.Dec. P 26,997, 24 U.S.P.Q.2d 1401

United States Court of Appeals,
Federal Circuit.

BROOKTREE CORPORATION, Plaintiff/Cross-Appellant,

v.

ADVANCED MICRO DEVICES, INC., Defendant/Appellant.

Nos. 91-1258, 91-1259.

Oct. 9, 1992.

Rehearing Denied; Suggestion for

Rehearing In Banc Declined

Jan. 4, 1993.

Manufacturer of semiconductor chips brought action against competitor for patent infringement and mask work registration infringement under Semiconductor Chip Protection Act. The United States District Court for the Southern District of California, William B. Enright, J., 757 F.Supp. 1088, entered judgment that patents were valid and infringed and that registered mask works were infringed. Competitor appealed and manufacturer cross-appealed. The Court of Appeals, Pauline Newman, Circuit Judge, held that: (1) entire chip need not be copied to find infringement of mask registrations under Act; (2) mask registrations were infringed by competitor's chips, despite competitor's claims of reverse engineering; (3) patents were valid; (4) patent directed to circuitry in manufacturer's chip products was infringed by competitor's chips; and (5) manufacturer's price reductions were properly included in calculation of damages.

Affirmed.

West Headnotes

[1] KeyCite Notes☞ 106 Courts☞ 106II Establishment, Organization, and Procedure☞ 106II(G) Rules of Decision☞ 106k88 Previous Decisions as Controlling or as Precedents☞ 106k96 Decisions of United States Courts as Authority in Other United States Courts☞ 106k96(7) k. Particular Questions or Subject Matter. Most Cited Cases

Appellate jurisdiction of United States Court of Appeals for the Federal Circuit under Semiconductor Chip Protection Act was pendent, and thus for issues of fact and law under Act, Federal Circuit would apply discernable law of Ninth Circuit on appeal from determination of federal district court within Ninth Circuit. 17 U.S.C.A. §§ 901-914.

[2] KeyCite Notes☞ 291 Patents☞ 291I Subjects of Patents☞ 291k4 Arts☞ 291k7.14 k. Particular Processes or Methods as Constituting Invention. Most Cited Cases

Electronic circuitry and electronic components are within statutory subject matter of patentable invention, and some original circuitry may be patentable if it also meets requirements of Patent Act. 35 U.S.C.A. § 101.

[3] KeyCite Notes

99 Copyrights and Intellectual Property

99I Copyrights

99I(A) Nature and Subject Matter

99k2 k. Constitutional and Statutory Provisions. Most Cited Cases

While some copyright principles underly Semiconductor Chip Protection Act, as do some attributes of patent law, Act was uniquely adapted to semiconductor mask works, in order to achieve appropriate protection for original designs while meeting competitive needs of industry and serving the public interest. 17 U.S.C.A. §§ 901-914.



[4] KeyCite Notes

99 Copyrights and Intellectual Property

99I Copyrights

99I(J) Infringement

99I(J)1 What Constitutes Infringement

99k67.2 k. Sound Recordings. Most Cited Cases

While Semiconductor Chip Protection Act does not use word "copy" to describe infringement, its parallel language to that in Copyright Act reflects incorporation of well-explicated copyright principle of substantial similarity. 17 U.S.C.A. §§ 106, 901(a)(9), 905.



[5] KeyCite Notes

99 Copyrights and Intellectual Property

99I Copyrights

99I(J) Infringement

99I(J)1 What Constitutes Infringement

99k53 Acts Constituting Infringement

99k53(1) k. In General. Most Cited Cases

(Formerly 99k53)

Principle of "substantial similarity" recognizes that existence of differences between accused and copyrighted work may not negate infringement if material portion of copyrighted work is appropriated. 17 U.S.C.A. § 106.



[6] KeyCite Notes

99 Copyrights and Intellectual Property

99I Copyrights

99I(J) Infringement

99I(J)1 What Constitutes Infringement

99k53 Acts Constituting Infringement

99k53(1) k. In General. Most Cited Cases

(Formerly 99k53)

If copied portion of copyrighted work is qualitatively important, finder of fact may properly find "substantial similarity" under copyright law. 17 U.S.C.A. § 106.



[7] KeyCite Notes

99 Copyrights and Intellectual Property

99I Copyrights

99I(J) Infringement

99I(J)1 What Constitutes Infringement

99k67.3 k. Other Works. Most Cited Cases

If copied portion of mask work is qualitatively important, finder of fact may properly find "substantial similarity" under Semiconductor Chip Protection Act. 17 U.S.C.A. §§ 901(a)(9), 905.



[8] KeyCite Notes

◆ 99 Copyrights and Intellectual Property

◆ 99I Copyrights

◆ 99I(J) Infringement

◆ 99I(J)1 What Constitutes Infringement

◆ 99k67.3 k. Other Works. Most Cited Cases

Infringement under Semiconductor Chip Protection Act does not require that all parts of accused chip be copied. 17 U.S.C.A. §§ 901(a)(9), 905.



[9] KeyCite Notes

◆ 99 Copyrights and Intellectual Property

◆ 99I Copyrights

◆ 99I(J) Infringement

◆ 99I(J)1 What Constitutes Infringement

◆ 99k67.3 k. Other Works. Most Cited Cases

Whether appropriation of cell layout constitutes infringement under Semiconductor Chip Protection Act in a particular case is for trier of fact, and cannot be decided as matter of law. 17 U.S.C.A. §§ 901(a)(9), 905.



[10] KeyCite Notes

◆ 99 Copyrights and Intellectual Property

◆ 99I Copyrights

◆ 99I(J) Infringement

◆ 99I(J)1 What Constitutes Infringement

◆ 99k67.3 k. Other Works. Most Cited Cases

One engaged in reverse engineering is not liable for infringement under Semiconductor Chip Protection Act when end product is itself original. 17 U.S.C.A. § 906(a).



[11] KeyCite Notes

◆ 99 Copyrights and Intellectual Property

◆ 99I Copyrights

◆ 99I(J) Infringement

◆ 99I(J)1 What Constitutes Infringement

◆ 99k67.3 k. Other Works. Most Cited Cases

In performing reverse engineering under Semiconductor Chip Protection Act, person may disassemble, study, and analyze existing chip in order to understand it, and that knowledge may be used to create original chip having different design layout, but which performs the same or equivalent function as existing chip, without penalty or prohibition. 17 U.S.C.A. § 906(a).



[12] KeyCite Notes

◆ 99 Copyrights and Intellectual Property

- ◆ 99I Copyrights
- ◆ 99I(J) Infringement
- ◆ 99I(J)2 Remedies
- ◆ 99k72 Actions for Infringement
- ◆ 99k83 Evidence
- ◆ 99k83(3) Weight and Sufficiency
- ◆ 99k83(7) k. Other Works. Most Cited Cases

Jury had sufficient evidentiary basis for finding infringement of mask work registrations under Semiconductor Chip Protection Act for chips embodying a circuit design that combined function of a static random access memory (SRAM) and a digital to analog converter (DAC) and acting as "color palette," and for rejecting competitor's reverse engineering defense. 17 U.S.C.A. § 906(a).



[13] KeyCite Notes

- ◆ 170B Federal Courts
- ◆ 170BVIII Courts of Appeals
- ◆ 170BVIII(K) Scope, Standards, and Extent
- ◆ 170BVIII(K)1 In General
- ◆ 170Bk763 Extent of Review Dependent on Nature of DecisionAppealed from
- ◆ 170Bk764 k. Taking Case from Jury. Most Cited Cases

Standard of review with respect to motion for judgment as a matter of law is whether there was legally sufficient evidence whereby reasonable jury could have reached the verdict actually reached. Fed.Rules Civ.Proc.Rule 50(a) (1), 28 U.S.C.A.



[14] KeyCite Notes

- ◆ 170A Federal Civil Procedure
- ◆ 170AXV Trial
- ◆ 170AXV(F) Taking Case or Question from Jury
- ◆ 170AXV(F)1 In General
- ◆ 170Ak2114 Nature and Form of Remedy
- ◆ 170Ak2117 k. Direction of Verdict. Most Cited Cases



- ◆ 170A Federal Civil Procedure KeyCite Notes
- ◆ 170AXVII Judgment
- ◆ 170AXVII(E) Notwithstanding Verdict
- ◆ 170Ak2601 k. In General. Most Cited Cases



- ◆ 170B Federal Courts KeyCite Notes
- ◆ 170BVIII Courts of Appeals
- ◆ 170BVIII(K) Scope, Standards, and Extent
- ◆ 170BVIII(K)1 In General
- ◆ 170Bk763 Extent of Review Dependent on Nature of DecisionAppealed from
- ◆ 170Bk764 k. Taking Case from Jury. Most Cited Cases

Change in name of motions for judgment notwithstanding the verdict and for directed verdict to motions for judgment as a matter of law was made in order to emphasize correlation in standards for grant of those motions as well as motions for summary judgment, and was not intended to change existing standard of review. Fed.Rules Civ.Proc.Rules 50, 56, 28 U.S.C.A.



[15] KeyCite Notes

☞ **170B Federal Courts**☞ **170BVIII Courts of Appeals**☞ **170BVIII(K) Scope, Standards, and Extent**☞ **170BVIII(K)5 Questions of Fact, Verdicts and Findings**☞ **170Bk844 k. Credibility of Witnesses in General. Most Cited Cases**

Issues of credibility of witnesses are for jury and are not amenable to appellate review.

**[16] KeyCite Notes**☞ **170B Federal Courts**☞ **170BVIII Courts of Appeals**☞ **170BVIII(K) Scope, Standards, and Extent**☞ **170BVIII(K)5 Questions of Fact, Verdicts and Findings**☞ **170Bk847 k. Verdicts in General. Most Cited Cases**

Jury's verdict must stand when there was sufficient evidence to support verdict in light of entire record, and upon correct or unobjected instructions of law.

**[17] KeyCite Notes**☞ **170B Federal Courts**☞ **170BVIII Courts of Appeals**☞ **170BVIII(K) Scope, Standards, and Extent**☞ **170BVIII(K)5 Questions of Fact, Verdicts and Findings**☞ **170Bk843 k. Inferences from Evidence. Most Cited Cases**

Reversal of jury verdict is proper only if evidence permits only one reasonable conclusion.

**[18] KeyCite Notes**☞ **170A Federal Civil Procedure**☞ **170AXV Trial**☞ **170AXV(G) Instructions**☞ **170Ak2182 Construction and Effect of Charge as a Whole**☞ **170Ak2182.1 k. In General. Most Cited Cases**

(Formerly 170Ak2182)

Correctness of jury instruction is question of law and, if objection to instruction was timely made at trial, it is reviewed on appeal to determine whether, on the whole, instructions were adequate to ensure that jury fully understood legal issues for each element of case.

**[19] KeyCite Notes**☞ **99 Copyrights and Intellectual Property**☞ **99I Copyrights**☞ **99I(A) Nature and Subject Matter**☞ **99k2 k. Constitutional and Statutory Provisions. Most Cited Cases**

Semiconductor Chip Protection Act does not reflect intent to excuse copying, as matter of law, if copier had first tried and failed to do the job without copying. **17 U.S.C.A. § 906(a)**.

[20] KeyCite Notes

99 Copyrights and Intellectual Property

99I Copyrights

99I(J) Infringement

99I(J)2 Remedies

99k72 Actions for Infringement

99k83 Evidence

99k83(3) Weight and Sufficiency

99k83(7) k. Other Works. Most Cited Cases

Paper trail showing reverse engineering, although evidence of independent effort, is not conclusive or incontrovertible proof of either originality or absence of copying in infringement action brought under Semiconductor Chip Protection Act. 17 U.S.C.A. § 906(a).

[21] KeyCite Notes

99 Copyrights and Intellectual Property

99I Copyrights

99I(J) Infringement

99I(J)2 Remedies

99k72 Actions for Infringement

99k88 k. Trial. Most Cited Cases

When evidence is such that reasonable minds could draw different conclusions as to issues of originality and copying in infringement action brought under Semiconductor Chip Protection Act, such questions are province of jury. 17 U.S.C.A. § 906(a).

[22] KeyCite Notes

170A Federal Civil Procedure

170AXVII Judgment

170AXVII(E) Notwithstanding Verdict

170Ak2601 k. In General. Most Cited Cases

Grant of judgment as a matter of law, by trial judge or by appellate court, is appropriate only when evidence, with inferences drawn favorably to party with verdict, could not reasonably support verdict. Fed.Rules Civ.Proc.Rule 50, 28 U.S.C.A.

[23] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k312 Evidence

291k312(3) Weight and Sufficiency

291k312(5) k. Particular Patents. Most Cited Cases

Substantial evidence allowed jury to find that patent, relating to portion of digital to analog conversion circuitry in semiconductor chip that allowed operation at high frequencies without "glitch" errors under variable operating conditions, was valid and did not fail to meet utility and enablement requirements of Patent Act. 35 U.S.C.A. §§ 101, 112.

[24] KeyCite Notes 

↳ 291 Patents

↳ 291II Patentability

↳ 291II(C) Utility

↳ 291k46 k. Nature and Necessity of Patentable Utility. Most Cited Cases

↳ 291 Patents KeyCite Notes 

↳ 291IV Applications and Proceedings Thereon

↳ 291k99 k. Description of Invention in Specification. Most Cited Cases

If claimed subject matter of patent is inoperable, patent may be invalid for failure to meet utility and enablement requirements. 35 U.S.C.A. §§ 101, 112.

[25] KeyCite Notes 

↳ 291 Patents

↳ 291II Patentability

↳ 291II(C) Utility

↳ 291k47 k. Capacity to Produce Result. Most Cited Cases

↳ 291 Patents KeyCite Notes 

↳ 291XII Infringement

↳ 291XII(C) Suits in Equity

↳ 291k314 Hearing

↳ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

To violate utility requirement for patent validity, claimed device must be totally incapable of achieving useful result, which is determination of fact. 35 U.S.C.A. § 101.

[26] KeyCite Notes 

↳ 170B Federal Courts

↳ 170BVIII Courts of Appeals

↳ 170BVIII(K) Scope, Standards, and Extent

↳ 170BVIII(K)5 Questions of Fact, Verdicts and Findings

↳ 170Bk855 Particular Actions and Proceedings, Verdicts and Findings

↳ 170Bk860 k. Copyrights, Patents and Trade Regulation. Most Cited Cases

Court of Appeals would review trial proceedings to ascertain whether there was substantial evidence whereby reasonable jury could have reached verdict that patent had not been proved invalid based on asserted inoperability of invention. 35 U.S.C.A. § 101.

[27] KeyCite Notes 

↳ 106 Courts

↳ 106II Establishment, Organization, and Procedure

↳ 106II(G) Rules of Decision

↳ 106k88 Previous Decisions as Controlling or as Precedents

↳ 106k96 Decisions of United States Courts as Authority in Other United States Courts

↳ 106k96(5) k. Decisions in Other Circuits. Most Cited Cases

United States Court of Appeals for the Federal Circuit follows procedural law of regional circuit in which case was tried as to the trial and review of jury verdicts, in order to avoid uncertainty among litigants and unnecessary burdens on trial courts.



[28] KeyCite Notes

- ⌚ 170A Federal Civil Procedure
 - ⌚ 170AXV Trial
 - ⌚ 170AXV(G) Instructions
 - ⌚ 170Ak2171 k. In General. Most Cited Cases

Unchallenged jury instructions state the law to be applied on review of jury verdict.



[29] KeyCite Notes

- ⌚ 157 Evidence
 - ⌚ 157IV Admissibility in General
 - ⌚ 157IV(E) Competency
 - ⌚ 157k150 k. Results of Experiments. Most Cited Cases

In ascertaining the truth when evidence is primarily scientific, as for other kinds of evidence, trier of fact must make determinations of credibility, reliability, and weight.



[30] KeyCite Notes

- ⌚ 291 Patents
 - ⌚ 291V Requisites and Validity of Letters Patent
 - ⌚ 291k118.12 Nature of Patent and Condition of Art
 - ⌚ 291k118.12(10) k. Miscellaneous Patents. Most Cited Cases
(Formerly 291k118.20)

Patent for dual port ten-transistor static random access memory (SRAM) core cell with two-stage sense amplifier used in semiconductor chips was valid.



[31] KeyCite Notes

- ⌚ 291 Patents
 - ⌚ 291XII Infringement
 - ⌚ 291XII(C) Suits in Equity
 - ⌚ 291k314 Hearing
 - ⌚ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

Reasonable jury could have concluded that addition of "for video display" in claims during prosecution before patent office for patent covering static random access memory (SRAM) cell used in semiconductor chips was not "new matter" that should not have been accepted by patent examiner. 35 U.S.C.A. § 132.



[32] KeyCite Notes

- ⌚ 291 Patents
 - ⌚ 291XII Infringement
 - ⌚ 291XII(C) Suits in Equity
 - ⌚ 291k324 Appeal

• 291k324.5 k. Scope and Extent of Review in General. Most Cited Cases



• 291 Patents KeyCite Notes

• 291XII Infringement

• 291XII(C) Suits in Equity

• 291k324 Appeal

• 291k324.55 Questions of Fact, Verdicts, and Findings

• 291k324.55(1) k. In General. Most Cited Cases

In reviewing jury's determination that addition to claims during prosecution before patent office was not "new matter" that should not have been accepted by patent examiner, Court of Appeals would not exercise de novo review, but rather its proper role was to review whether jury reasonably applied the law, as explained in the instructions, to the particular facts of the case. 35 U.S.C.A. § 132.



[33] KeyCite Notes

• 291 Patents

• 291IX Construction and Operation of Letters Patent

• 291IX(B) Limitation of Claims

• 291k168 Proceedings in Patent Office in General

• 291k168(2) Rejection and Amendment of Claims

• 291k168(2.2) k. Voluntary or Unnecessary Amendment or Cancellation. Most Cited Cases
(Formerly 291k168(21/4))

Whether particular technological information is "new matter" that should not be accepted by patent examiner depends upon nature of disclosure, state of the art, and nature of added matter. 35 U.S.C.A. § 132.



[34] KeyCite Notes

• 291 Patents

• 291IV Applications and Proceedings Thereon

• 291k112 Conclusiveness and Effect of Decisions of Patent Office

• 291k112.1 k. In General. Most Cited Cases

Patent is presumed valid, which presumption is based in part on expertise of patent examiners presumed to have done their job. 35 U.S.C.A. § 282.



[35] KeyCite Notes

• 291 Patents

• 291XII Infringement

• 291XII(C) Suits in Equity

• 291k312 Evidence

• 291k312(3) Weight and Sufficiency

• 291k312(6) k. Particular Matters, Sufficiency as To. Most Cited Cases

Substantial evidence allowed jury to find that "best mode" requirement had been met with respect to patent covering static random access memory (SRAM) cell used in semiconductor chips, even though patent did not initially contain term "for video display" until added during prosecution before patent office.



[36] KeyCite Notes

• 291 Patents

◆ 291IX Construction and Operation of Letters Patent

◆ 291IX(B) Limitation of Claims

◆ 291k168 Proceedings in Patent Office in General

◆ 291k168(2) Rejection and Amendment of Claims

◆ 291k168(2.6) k. Extent of Estoppel as Affected by Examiner's Objections or References. Most Cited

Cases

(Formerly 291k168(23/4))

Patent examiner's request that "video display" application be expressly stated in claims for patent covering static random access memory (SRAM) cell used in semiconductor chips, and patent holder's compliance therewith, was not probative evidence of concealment of that application which would preclude finding that "best mode" requirement had been met.



[37] KeyCite Notes

◆ 291 Patents

◆ 291IV Applications and Proceedings Thereon

◆ 291k99 k. Description of Invention in Specification. Most Cited Cases

Invalidity of patent for violation of "best mode" requires intentional concealment of better mode than was disclosed.



[38] KeyCite Notes

◆ 291 Patents

◆ 291IV Applications and Proceedings Thereon

◆ 291k99 k. Description of Invention in Specification. Most Cited Cases

That which is included in issued patent is, ipso facto, not concealed, for purpose of rule that invalidity of patent for violation of best mode requirement requires intentional concealment of better mode than was disclosed.



[39] KeyCite Notes

◆ 170B Federal Courts

◆ 170BVIII Courts of Appeals

◆ 170BVIII(D) Presentation and Reservation in Lower Court of Grounds of Review

◆ 170BVIII(D)1 Issues and Questions in Lower Court

◆ 170Bk611 k. Necessity of Presentation in General. Most Cited Cases

Appellate court may, in order to avoid injustice, elect to entertain arguments or consider issues raised for first time on appeal.



[40] KeyCite Notes

◆ 291 Patents

◆ 291XII Infringement

◆ 291XII(C) Suits in Equity

◆ 291k324 Appeal

◆ 291k324.60 k. Determination and Disposition of Cause. Most Cited Cases

Issues as to adequacy of patent's written description or enablement were mooted by determination on appeal that there was sufficient evidence for jury to find that "new matter" constraint had not been violated.



[41] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k312 Evidence

291k312(3) Weight and Sufficiency

291k312(5) k. Particular Patents. Most Cited Cases

Substantial evidence allowed jury to find that patent for circuit that provided constant voltage output for biasing certain transistors in a digital to analog conversion circuit, such that transistors were activated only in accordance with digital input signal, was infringed by competitor's semiconductor chips.



[42] KeyCite Notes

99 Copyrights and Intellectual Property

99I Copyrights

99I(J) Infringement

99I(J)2 Remedies

99k72 Actions for Infringement

99k88 k. Trial. Most Cited Cases

291 Patents KeyCite Notes

291XII Infringement

291XII(C) Suits in Equity

291k314 Hearing

291k314(5) k. Questions of Law or Fact. Most Cited Cases

Measure of actual damages for infringement of patent and for infringement of mask registrations under Semiconductor Chip Protection Act is question of fact, including question of whether competitor's premarketing activities caused financial losses to holder of patent and registrations. 17 U.S.C.A. § 911(b).



[43] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k319 Damages

291k319(1) k. In General. Most Cited Cases

In patent cases, damages are measured by inquiring as to what would have been the financial position of person wronged had infringer not committed the wrong.



[44] KeyCite Notes

99 Copyrights and Intellectual Property

99I Copyrights

99I(J) Infringement

99I(J)2 Remedies

99k72 Actions for Infringement

99k87 Damages and Profits

99k87(2) k. Elements, Measure, and Amount. Most Cited Cases

291 Patents KeyCite Notes

↳ 291XII Infringement↳ 291XII(C) Suits in Equity↳ 291k319 Damages↳ 291k319(1) k. In General. Most Cited Cases

Losses incurred by holder of mask registrations under Semiconductor Chip Protection Act and patents upon announcement by competitor of infringing activity may be included when awarding damages to holder, if losses are found to be reasonably related to infringing activity. 17 U.S.C.A. § 911(b).

[45] KeyCite Notes↳ 99 Copyrights and Intellectual Property↳ 99I Copyrights↳ 99I(J) Infringement↳ 99I(J)2 Remedies↳ 99k72 Actions for Infringement↳ 99k87 Damages and Profits↳ 99k87(2) k. Elements, Measure, and Amount. Most Cited Cases↳ 291 Patents KeyCite Notes↳ 291XII Infringement↳ 291XII(C) Suits in Equity↳ 291k319 Damages↳ 291k319(1) k. In General. Most Cited Cases

Legally sufficient evidentiary basis allowed jury to conclude that price reductions by holder of mask registrations under Semiconductor Chip Protection Act and patents were made as result of competitor's actual and announced marketing of infringing chips, and therefore jury properly included those price reductions in calculation of damages. 17 U.S.C.A. § 911(b).

[46] KeyCite Notes

 [West Reporter Image \(PDF\)](#)

— (Cite as: 57 C.C.P.A. 1029, 424 F.2d 1382) —

57 C.C.P.A. 1029, 424 F.2d 1382, 165 U.S.P.Q. 494

United States Court of Customs and Patent Appeals.

Application of David W. WILSON.

Patent Appeal No. 8271.

May 7, 1970.

Proceeding on patent application serial No. 332,321. The Patent Office Board of Appeals affirmed rejection of claims 1-4, 8-10, and 15-21, and applicant appealed. The Court of Customs and Patent Appeals, Lane, J., held that Patent Office Board of Appeals' disregard of term 'incompatible' as used in claims relating to treatment of power driven rotary brushes with 'incompatible' resins rendered its conclusion of obviousness unsupported. Reversed.

West Headnotes



[1] KeyCite Notes

↳ 291 Patents

↳ 291IV Applications and Proceedings Thereon

↳ 291k101 Claims

↳ 291k101(5) k. Requisites and Sufficiency. Most Cited Cases

Specification with respect to composition for treatment of power driven rotary brushes was sufficient to support claims in issue. 35 U.S.C.A. § 112.



[2] KeyCite Notes

↳ 291 Patents

↳ 291II Patentability

↳ 291II(D) Anticipation

↳ 291k50 Prior Knowledge or Use

↳ 291k51 Nature and Extent in General

↳ 291k51(1) k. In General. Most Cited Cases

All words in claim must be considered in judging patentability of claim against prior art. 35 U.S.C.A. § 103.



[3] KeyCite Notes

↳ 291 Patents

↳ 291II Patentability

↳ 291II(A) Invention; Obviousness

↳ 291k16 Invention and Obviousness in General

↳ 291k16(1) k. In General. Most Cited Cases

(Formerly 291k18)

↳ 291 Patents

↳ 291IV Applications and Proceedings Thereon

↳ 291k101 Claims

↳ 291k101(6) k. Ambiguity, Uncertainty or Indefiniteness. Most Cited Cases

If no reasonably definite meaning can be ascribed to certain terms in claim, subject matter does not become

obvious, but claim becomes indefinite. 35 U.S.C.A. § 503.

[4] KeyCite Notes



- ⌚ 291 Patents
- ⌚ 291IV Applications and Proceedings Thereon
- ⌚ 291k113 Appeals from Decisions of Commissioner of Patents
- ⌚ 291k113(6) k. Review on Appeal in General. Most Cited Cases

Patent Office Board of Appeals' disregard of term "incompatible" as used in claims relating to treatment of power driven rotary brushes with "incompatible" resins rendered its conclusion of obviousness unsupported. 35 U.S.C.A. § 103.

KeyCite Notes



- ⌚ 291 Patents
- ⌚ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents
- ⌚ 291k328 Patents Enumerated
- ⌚ 291k328(2) k. Original. Most Cited Cases

2,933,469, 2,890,136, 3,051,670, 3,015,638. Cited.
****1382**

— (Cite as: 57 C.C.P.A. 1029, 424 F.2d 1382, **1382) —

***1029**

— (Cite as: 57 C.C.P.A. 1029, *1029, 424 F.2d 1382, **1382) —

Oberlin, Maky, Donnelly & Renner, William E. Thomson, Jr., John C. Oberlin, Cleveland, Ohio, attorneys of record, for appellant.

Joseph Schimmel, Washington, D.C., for the Commissioner of Patents. Raymond E. Martin, Washington, D.C., of counsel.

Before RICH, Acting Chief Judge, ALMOND, BALDWIN and LANE, Judges, and FORD, Judge, United States Customs Court, sitting by designation.

LANE, Judge.

This appeal is from the decision of the Patent Office Board of Appeals, which affirmed the rejection of claims 1-4, 8-10, and 15-21 in appellant's application serial No. 332,321, filed November 5, 1963, for 'Treated Brush and Brush Treating Composition.' Four other claims have been allowed. We conclude that the board's decision must be reversed.

THE DISCLOSURE

Appellant's disclosure discusses certain problems in the treatment of power-driven rotary brushes. According to the disclosure, it was desirable to produce ****1383**

— (Cite as: 57 C.C.P.A. 1029, *1029, 424 F.2d 1382, **1383) —

a composition for treating the brush bristles, whereby the ability of the bristles to hold abrasive particles would be enhanced. It discloses that the treatment composition should have a strength of adhesion to the brush bristles sufficiently great to prevent such composition from transferring excessively to the object being brushed; that the treatment material should wear at substantially the same rate as the brush bristles; that the material should have a high temperature softening point; and that the strength of adhesion between the treating composition and the abrasive particles must be sufficient to withstand the centrifugal force which normally would tend to throw the abrasive outwardly from the brush. The disclosure ***1030**

— (Cite as: 57 C.C.P.A. 1029, *1030, 424 F.2d 1382, **1383) —

states that previously known brush-treating compositions did not accomplish all these objectives and had a tendency to dry and lose their tackiness over a period of time, thus becoming useless for holding abrasive particles on the bristles.

The disclosure states that appellant discovered that a composition having a high temperature softening point and a high degree of tackiness could be produced if a film-forming resin were blended with a tackifier resin which was incompatible with (insoluble in) the film-forming resin. The resulting composition would have two distinct phases: a continuous phase comprised of film-forming resin, either alone or saturated with a small quantity of tackifier resin, and a dispersed phase comprised of small particles of tackifier resin. The two resins may be either completely or partially incompatible, and the disclosure states that the more insoluble the resins, the greater the tack which the composition possesses. Appellant also disclosed that certain plasticizers could be added to render the resins more incompatible, thus further increasing the tack of the composition. Finally, appellant stated that the entire composition could be dissolved in a volatile solvent to allow easy application to the brush, the solvent being one which quickly evaporates upon such application.

The specification contains a list of suitable film-forming resins, including ethyl cellulose, nitro cellulose, cellulose acetate, polyvinyl acetate and cis-polyisoprene, among other materials. A list of tackifiers is given, including certain esters of abietic acid, polyvinyl ethyl ether, coumarone indene resin and terpene resins. A list of plasticizers is also given. The specification then gives four examples showing how to combine various film-formers, tackifiers, plasticizers and solvents to obtain brush-treating compositions of the desired characteristics, and explains how to apply them to brushes.

THE CLAIMS

In view of the result we reach, we find that claims 1 and 8 are representative:

1. A two-phase brush treating composition having a high softening point and sufficient tack to retain abrasive material firmly adhered to brush fill material comprising a film-forming resin and a tackifier resin which is incompatible with said film-forming resin, said two phases comprising a continuous phase formed of said film-forming resin and a dispersed phase formed of small particles of tackifier resin.
8. In combination, a rotary brush having brush fill material and a two-phase pressure sensitive adhesive brush treating composition adhered thereto having a high softening point and sufficient tack to retain abrasive material firmly adhered to such brush fill material comprising a film-forming resin and a tackifier resin which is incompatible with said film-forming resin, said two phases ***1031**

(Cite as: 57 C.C.P.A. 1029, *1031, 424 F.2d 1382, **1383)

comprising a continuous phase formed of said film-forming resin and a dispersed phase formed of small particles of tackifier resin.

****1384**

(Cite as: 57 C.C.P.A. 1029, *1031, 424 F.2d 1382, **1384)

The remaining claims on appeal are narrower, containing recitations of specific resins, plasticizers, etc.

THE PRIOR ART

Grantham [FN1] relates to coatings for film material and discloses a coating composition comprising a cellulose derivative film-former, a blending resin, a plasticizer, and an organic solvent. Grantham teaches that the blending agent and the film-former should be compatible.

FN1. U.S.Pat. 3,051,670, issued August 28, 1962.

Depew [FN2] teaches the preparation of emulsions consisting of a continuous phase of water and a discontinuous phase of elastomer particles and particles of a volatile hydrocarbon, with vulcanizing ingredients and other additives dispersed in the hydrocarbon particles. Depew then stated that where a dispersion with additional adhesive properties is desired, an adhesive, such as certain of the tackifier resins disclosed by appellants, can be added to the emulsion, and that

FN2. U.S.Pat. 2,933,469, issued April 19, 1960.

this adhesive can be water soluble or dispersed as particles. * * * The chemistry of the adhesive component is not critical to this invention. The important thing is that the deposited film shall be tacky and adhesive.

Sergi [FN3] relates to adhesives suitable for installation of floor-covering products such as linoleum. Sergi's composition consists of a tackifier resin dispersed in a latex binder; the tackifier and latex must be compatible with one another, according to the Sergi disclosure.

FN3. U.S.Pat. 3,015,638, issued January 2, 1962.

Vaughan [FN4] teaches impregnating a fibrous buffing wheel with an aqueous emulsion consisting of a tacky resin and an emulsifier or stabilizer such as glue or gum.

FN4. U.S.Pat. 2,890,136, issued June 9, 1959.

THE BOARD

The board found the composition claims to be unpatentable over Depew, Sergi or Grantham under 35 U.S.C. § 103, The board reached this conclusion after noting that each of the three references shows some of the film-formers, tackifiers, plasticizers and solvents appearing in appellant's lists. The board found that the recited limitation of incompatibility was too relative a term to distinguish over the compositions of the references.

The board found that the claims to the treated brush were unpatentable, under 35 U.S.C. § 103, over Vaughan in view of Sergi or Depew. Since Vaughan shows treating brushes, the board apparently considered *1032

— (Cite as: 57 C.C.P.A. 1029, *1032, 424 F.2d 1382, **1384) —

it obvious to treat brushes with compositions which it thought were made obvious by Sergi or Depew.

The board also affirmed the rejection of certain claims for being 'broader than the disclosure' under 35 U.S.C. § 112. The board's basis for this rejection was that the specification did not provide adequate guidelines for making a selection among the various disclosed ingredients, nor among other materials which are not disclosed but would be included by the claims.

OPINION



[1] We first treat the rejection under section 112. This rejection is in effect an attack on the specification as being insufficient to teach how to practice the broad invention claimed. The rejection is therefore under the first paragraph of section 112. The board's position, as mentioned above, was that the specification did not teach how to select ingredients so that the desired incompatibility would result. We disagree with the board's position on this point. First of all, appellant provided four examples, each specifying the nature and amounts of materials to be used. Secondly, the record indicates that it involves only routine experimentation to find out which resins are incompatible. The examiner admitted as much when, **1385

— (Cite as: 57 C.C.P.A. 1029, *1032, 424 F.2d 1382, **1385) —

with regard to obviousness, he said 'selecting the proper tackifier and film-forming resin from those listed in the references to form an emulsion or two-phase composition would be within the expected skill of the art and would merely involve routine experimentation.' We conclude that appellant has provided a sufficient specification to support the claims here in issue.







[2] [3] [4] Turning to the rejection of the claims for obviousness, we again disagree with the board's position. The board has disregarded the term 'incompatible,' as used in the claims, because it is 'too relative' to distinguish over the compositions of the references. Appellant contends this limitation is essential in defining his invention. There has been no rejection here for indefiniteness, under the second paragraph of section 112. Rather than reject the claims as indefinite, the board chose to ignore the language it considered indefinite, and proceeded as though that language were not in the claims. The board said, in effect, that since we do not know what 'incompatible' means, and the rest of the claim defines obvious subject matter, there is no basis for concluding unobviousness. This reasoning is incorrect. All words in a claim must be considered in judging the patentability of that claim against the prior art. If no reasonably definite meaning can be ascribed to certain terms in the claim, the subject matter does not become obvious-- the claim becomes indefinite. In the present case, we think the *1033

— (Cite as: 57 C.C.P.A. 1029, *1033, 424 F.2d 1382, **1385) —

term 'incompatible' is defined with reasonable definiteness in the specification. While it is true that the word is not perfectly precise, under the circumstances of the present case there appears to be no other way for appellant to describe his discovery. In any event, the ignoring of this term by the board renders its conclusion of obviousness unsupported. None of the references discloses a two-phase composition of incompatible resins or suggests that such a composition would have the properties disclosed by appellant. Grantham and Sergi both expressly teach that the components of their compositions should be compatible. Neither Vaughan nor Depew uses a resin as the continuous phase. While Depew states, as quoted above, that the adhesive material may be dispersed as particles in the continuous phase, and hence be incompatible with the continuous phase material, it cannot be ignored that Depew's continuous phase is of water, not a film-forming resin as recited in appellant's claims. Furthermore, there is no

suggestion in Depew or Vaughan that there are advantages in using an adhesive which is insoluble in the aqueous phase. There is nothing of record, therefore, from which we can properly conclude that the subject matter of appellant's claims would have been obvious at the time of his invention. The decision of the board must accordingly be reversed.

***1029**

(Cite as: 57 C.C.P.A. 1029, *1029, 424 F.2d 1382, **1385)

Reversed.

Cust. & Pat.App., 1970.

Application of Wilson,

57 C.C.P.A. 1029, 424 F.2d 1382, 165 U.S.P.Q. 494

END OF DOCUMENT

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West Reporter Image (PDF)

(Cite as: 57 C.C.P.A. 1029, 424 F.2d 1382)

57 C.C.P.A. 1029, 424 F.2d 1382, 165 U.S.P.Q. 494

United States Court of Customs and Patent Appeals.

Application of David W. WILSON.

Patent Appeal No. 8271.

May 7, 1970.

Proceeding on patent application serial No. 332,321. The Patent Office Board of Appeals affirmed rejection of claims 1-4, 8-10, and 15-21, and applicant appealed. The Court of Customs and Patent Appeals, Lane, J., held that Patent Office Board of Appeals' disregard of term 'incompatible' as used in claims relating to treatment of power driven rotary brushes with 'incompatible' resins rendered its conclusion of obviousness unsupported.

Reversed.

West Headnotes

[1] KeyCite Notes

↳ 291 Patents

↳ 291IV Applications and Proceedings Thereon

↳ 291k101 Claims

↳ 291k101(5) k. Requisites and Sufficiency. Most Cited Cases

Specification with respect to composition for treatment of power driven rotary brushes was sufficient to support claims in issue. 35 U.S.C.A. § 112.

[2] KeyCite Notes

↳ 291 Patents

↳ 291II Patentability

↳ 291II(D) Anticipation

↳ 291k50 Prior Knowledge or Use

↳ 291k51 Nature and Extent in General

↳ 291k51(1) k. In General. Most Cited Cases

All words in claim must be considered in judging patentability of claim against prior art. 35 U.S.C.A. § 103.

[3] KeyCite Notes

↳ 291 Patents

↳ 291II Patentability

↳ 291II(A) Invention; Obviousness

↳ 291k16 Invention and Obviousness in General

↳ 291k16(1) k. In General. Most Cited Cases

(Formerly 291k18)

↳ 291 Patents

↳ 291IV Applications and Proceedings Thereon

↳ 291k101 Claims

↳ 291k101(6) k. Ambiguity, Uncertainty or Indefiniteness. Most Cited Cases

If no reasonably definite meaning can be ascribed to certain terms in claim, subject matter does not become

obvious, but claim becomes indefinite. 35 U.S.C.A. § 503.



[4] KeyCite Notes

↳ 291 Patents

↳ 291IV Applications and Proceedings Thereon

↳ 291k113 Appeals from Decisions of Commissioner of Patents

↳ 291k113(6) k. Review on Appeal in General. Most Cited Cases

Patent Office Board of Appeals' disregard of term "incompatible" as used in claims relating to treatment of power driven rotary brushes with "incompatible" resins rendered its conclusion of obviousness unsupported. 35 U.S.C.A. § 103.



KeyCite Notes

↳ 291 Patents

↳ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents

↳ 291k328 Patents Enumerated

↳ 291k328(2) k. Original. Most Cited Cases

2,933,469, 2,890,136, 3,051,670, 3,015,638. Cited.

****1382**

— (Cite as: 57 C.C.P.A. 1029, 424 F.2d 1382, **1382) —

***1029**

— (Cite as: 57 C.C.P.A. 1029, *1029, 424 F.2d 1382, **1382) —

Oberlin, Maky, Donnelly & Renner, William E. Thomson, Jr., John C. Oberlin, Cleveland, Ohio, attorneys of record, for appellant.

Joseph Schimmel, Washington, D.C., for the Commissioner of Patents. Raymond E. Martin, Washington, D.C., of counsel.

Before RICH, Acting Chief Judge, ALMOND, BALDWIN and LANE, Judges, and FORD, Judge, United States Customs Court, sitting by designation.

LANE, Judge.

This appeal is from the decision of the Patent Office Board of Appeals, which affirmed the rejection of claims 1-4, 8-10, and 15-21 in appellant's application serial No. 332,321, filed November 5, 1963, for 'Treated Brush and Brush Treating Composition.' Four other claims have been allowed. We conclude that the board's decision must be reversed.

THE DISCLOSURE

Appellant's disclosure discusses certain problems in the treatment of power-driven rotary brushes. According to the disclosure, it was desirable to produce ****1383**

— (Cite as: 57 C.C.P.A. 1029, *1029, 424 F.2d 1382, **1383) —

a composition for treating the brush bristles, whereby the ability of the bristles to hold abrasive particles would be enhanced. It discloses that the treatment composition should have a strength of adhesion to the brush bristles sufficiently great to prevent such composition from transferring excessively to the object being brushed; that the treatment material should wear at substantially the same rate as the brush bristles; that the material should have a high temperature softening point; and that the strength of adhesion between the treating composition and the abrasive particles must be sufficient to withstand the centrifugal force which normally would tend to throw the abrasive outwardly from the brush. The disclosure ***1030**

— (Cite as: 57 C.C.P.A. 1029, *1030, 424 F.2d 1382, **1383) —

states that previously known brush-treating compositions did not accomplish all these objectives and had a tendency to dry and lose their tackiness over a period of time, thus becoming useless for holding abrasive particles on the bristles.

The disclosure states that appellant discovered that a composition having a high temperature softening point and a high degree of tackiness could be produced if a film-forming resin were blended with a tackifier resin which was incompatible with (insoluble in) the film-forming resin. The resulting composition would have two distinct phases: a continuous phase comprised of film-forming resin, either alone or saturated with a small quantity of tackifier resin, and a dispersed phase comprised of small particles of tackifier resin. The two resins may be either completely or partially incompatible, and the disclosure states that the more insoluble the resins, the greater the tack which the composition possesses. Appellant also disclosed that certain plasticizers could be added to render the resins more incompatible, thus further increasing the tack of the composition. Finally, appellant stated that the entire composition could be dissolved in a volatile solvent to allow easy application to the brush, the solvent being one which quickly evaporates upon such application.

The specification contains a list of suitable film-forming resins, including ethyl cellulose, nitro cellulose, cellulose acetate, polyvinyl acetate and cis-polyisoprene, among other materials. A list of tackifiers is given, including certain esters of abietic acid, polyvinyl ethyl ether, coumarone indene resin and terpene resins. A list of plasticizers is also given. The specification then gives four examples showing how to combine various film-formers, tackifiers, plasticizers and solvents to obtain brush-treating compositions of the desired characteristics, and explains how to apply them to brushes.

THE CLAIMS

In view of the result we reach, we find that claims 1 and 8 are representative:

1. A two-phase brush treating composition having a high softening point and sufficient tack to retain abrasive material firmly adhered to brush fill material comprising a film-forming resin and a tackifier resin which is incompatible with said film-forming resin, said two phases comprising a continuous phase formed of said film-forming resin and a dispersed phase formed of small particles of tackifier resin.
8. In combination, a rotary brush having brush fill material and a two-phase pressure sensitive adhesive brush treating composition adhered thereto having a high softening point and sufficient tack to retain abrasive material firmly adhered to such brush fill material comprising a film-forming resin and a tackifier resin which is incompatible with said film-forming resin, said two phases ***1031**

(Cite as: 57 C.C.P.A. 1029, *1031, 424 F.2d 1382, **1383)

comprising a continuous phase formed of said film-forming resin and a dispersed phase formed of small particles of tackifier resin.

****1384**

(Cite as: 57 C.C.P.A. 1029, *1031, 424 F.2d 1382, **1384)

The remaining claims on appeal are narrower, containing recitations of specific resins, plasticizers, etc.

THE PRIOR ART

Grantham [FN1] relates to coatings for film material and discloses a coating composition comprising a cellulose derivative film-former, a blending resin, a plasticizer, and an organic solvent. Grantham teaches that the blending agent and the film-former should be compatible.

FN1. U.S.Pat. 3,051,670, issued August 28, 1962.

Depew [FN2] teaches the preparation of emulsions consisting of a continuous phase of water and a discontinuous phase of elastomer particles and particles of a volatile hydrocarbon, with vulcanizing ingredients and other additives dispersed in the hydrocarbon particles. Depew then stated that where a dispersion with additional adhesive properties is desired, an adhesive, such as certain of the tackifier resins disclosed by appellants, can be added to the emulsion, and that

FN2. U.S.Pat. 2,933,469, issued April 19, 1960.

this adhesive can be water soluble or dispersed as particles. * * * The chemistry of the adhesive component is not critical to this invention. The important thing is that the deposited film shall be tacky and adhesive. Sergi [FN3] relates to adhesives suitable for installation of floor-covering products such as linoleum. Sergi's composition consists of a tackifier resin dispersed in a latex binder; the tackifier and latex must be compatible with one another, according to the Sergi disclosure.

FN3. U.S.Pat. 3,015,638, issued January 2, 1962.

Vaughan [FN4] teaches impregnating a fibrous buffing wheel with an aqueous emulsion consisting of a tacky resin and an emulsifier or stabilizer such as glue or gum.

FN4. U.S.Pat. 2,890,136, issued June 9, 1959.

THE BOARD

The board found the composition claims to be unpatentable over Depew, Sergi or Grantham under 35 U.S.C. § 103. The board reached this conclusion after noting that each of the three references shows some of the film-formers, tackifiers, plasticizers and solvents appearing in appellant's lists. The board found that the recited limitation of incompatibility was too relative a term to distinguish over the compositions of the references.

The board found that the claims to the treated brush were unpatentable, under 35 U.S.C. § 103, over Vaughan in view of Sergi or Depew. Since Vaughan shows treating brushes, the board apparently considered *1032

— (Cite as: 57 C.C.P.A. 1029, *1032, 424 F.2d 1382, **1384) —

it obvious to treat brushes with compositions which it thought were made obvious by Sergi or Depew.

The board also affirmed the rejection of certain claims for being 'broader than the disclosure' under 35 U.S.C. § 112. The board's basis for this rejection was that the specification did not provide adequate guidelines for making a selection among the various disclosed ingredients, nor among other materials which are not disclosed but would be included by the claims.

OPINION



[1] We first treat the rejection under section 112. This rejection is in effect an attack on the specification as being insufficient to teach how to practice the broad invention claimed. The rejection is therefore under the first paragraph of section 112. The board's position, as mentioned above, was that the specification did not teach how to select ingredients so that the desired incompatibility would result. We disagree with the board's position on this point. First of all, appellant provided four examples, each specifying the nature and amounts of materials to be used. Secondly, the record indicates that it involves only routine experimentation to find out which resins are incompatible. The examiner admitted as much when, **1385

— (Cite as: 57 C.C.P.A. 1029, *1032, 424 F.2d 1382, **1385) —

with regard to obviousness, he said 'selecting the proper tackifier and film-forming resin from those listed in the references to form an emulsion or two-phase composition would be within the expected skill of the art and would merely involve routine experimentation.' We conclude that appellant has provided a sufficient specification to support the claims here in issue.



[2] [3] [4] Turning to the rejection of the claims for obviousness, we again disagree with the board's position. The board has disregarded the term 'incompatible,' as used in the claims, because it is 'too relative' to distinguish over the compositions of the references. Appellant contends this limitation is essential in defining his invention. There has been no rejection here for indefiniteness, under the second paragraph of section 112. Rather than reject the claims as indefinite, the board chose to ignore the language it considered indefinite, and proceeded as though that language were not in the claims. The board said, in effect, that since we do not know what 'incompatible' means, and the rest of the claim defines obvious subject matter, there is no basis for concluding unobviousness. This reasoning is incorrect. All words in a claim must be considered in judging the patentability of that claim against the prior art. If no reasonably definite meaning can be ascribed to certain terms in the claim, the subject matter does not become obvious-- the claim becomes indefinite. In the present case, we think the *1033

— (Cite as: 57 C.C.P.A. 1029, *1033, 424 F.2d 1382, **1385) —

term 'incompatible' is defined with reasonable definiteness in the specification. While it is true that the word is not perfectly precise, under the circumstances of the present case there appears to be no other way for appellant to describe his discovery. In any event, the ignoring of this term by the board renders its conclusion of obviousness unsupported. None of the references discloses a two-phase composition of incompatible resins or suggests that such a composition would have the properties disclosed by appellant. Grantham and Sergi both expressly teach that the components of their compositions should be compatible. Neither Vaughan nor Depew uses a resin as the continuous phase. While Depew states, as quoted above, that the adhesive material may be dispersed as particles in the continuous phase, and hence be incompatible with the continuous phase material, it cannot be ignored that Depew's continuous phase is of water, not a film-forming resin as recited in appellant's claims. Furthermore, there is no

suggestion in Depew or Vaughan that there are advantages in using an adhesive which is insoluble in the aqueous phase. There is nothing of record, therefore, from which we can properly conclude that the subject matter of appellant's claims would have been obvious at the time of his invention. The decision of the board must accordingly be reversed.

***1029**

(Cite as: 57 C.C.P.A. 1029, *1029, 424 F.2d 1382, **1385)

Reversed.

Cust. & Pat.App., 1970.

Application of Wilson,

57 C.C.P.A. 1029, 424 F.2d 1382, 165 U.S.P.Q. 494

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West Reporter Image (PDF)

(Cite as: 57 C.C.P.A. 1029, 424 F.2d 1382)

57 C.C.P.A. 1029, 424 F.2d 1382, 165 U.S.P.Q. 494

United States Court of Customs and Patent Appeals.

Application of David W. WILSON.

Patent Appeal No. 8271.

May 7, 1970.

Proceeding on patent application serial No. 332,321. The Patent Office Board of Appeals affirmed rejection of claims 1-4, 8-10, and 15-21, and applicant appealed. The Court of Customs and Patent Appeals, Lane, J., held that Patent Office Board of Appeals' disregard of term 'incompatible' as used in claims relating to treatment of power driven rotary brushes with 'incompatible' resins rendered its conclusion of obviousness unsupported.

Reversed.

West Headnotes

[1] KeyCite Notes

291 Patents

291IV Applications and Proceedings Thereon

291k101 Claims

291k101(5) k. Requisites and Sufficiency. Most Cited Cases

Specification with respect to composition for treatment of power driven rotary brushes was sufficient to support claims in issue. 35 U.S.C.A. § 112.

[2] KeyCite Notes

291 Patents

291II Patentability

291II(D) Anticipation

291k50 Prior Knowledge or Use

291k51 Nature and Extent in General

291k51(1) k. In General. Most Cited Cases

All words in claim must be considered in judging patentability of claim against prior art. 35 U.S.C.A. § 103.

[3] KeyCite Notes

291 Patents

291II Patentability

291II(A) Invention; Obviousness

291k16 Invention and Obviousness in General

291k16(1) k. In General. Most Cited Cases

(Formerly 291k18)

291 Patents

291IV Applications and Proceedings Thereon

291k101 Claims

291k101(6) k. Ambiguity, Uncertainty or Indefiniteness. Most Cited Cases

If no reasonably definite meaning can be ascribed to certain terms in claim, subject matter does not become

obvious, but claim becomes indefinite. 35 U.S.C.A. § 503.

[4] KeyCite Notes



↳ 291 Patents

↳ 291IV Applications and Proceedings Thereon

↳ 291k113 Appeals from Decisions of Commissioner of Patents

↳ 291k113(6) k. Review on Appeal in General. Most Cited Cases

Patent Office Board of Appeals' disregard of term "incompatible" as used in claims relating to treatment of power driven rotary brushes with "incompatible" resins rendered its conclusion of obviousness unsupported. 35 U.S.C.A. § 103.

KeyCite Notes



↳ 291 Patents

↳ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents

↳ 291k328 Patents Enumerated

↳ 291k328(2) k. Original. Most Cited Cases

2,933,469, 2,890,136, 3,051,670, 3,015,638. Cited.

****1382**

(Cite as: 57 C.C.P.A. 1029, 424 F.2d 1382, **1382)

***1029**

(Cite as: 57 C.C.P.A. 1029, *1029, 424 F.2d 1382, **1382)

Oberlin, Maky, Donnelly & Renner, William E. Thomson, Jr., John C. Oberlin, Cleveland, Ohio, attorneys of record, for appellant.

Joseph Schimmel, Washington, D.C., for the Commissioner of Patents. Raymond E. Martin, Washington, D.C., of counsel.

Before RICH, Acting Chief Judge, ALMOND, BALDWIN and LANE, Judges, and FORD, Judge, United States Customs Court, sitting by designation.

LANE, Judge.

This appeal is from the decision of the Patent Office Board of Appeals, which affirmed the rejection of claims 1-4, 8-10, and 15-21 in appellant's application serial No. 332,321, filed November 5, 1963, for 'Treated Brush and Brush Treating Composition.' Four other claims have been allowed. We conclude that the board's decision must be reversed.

THE DISCLOSURE

Appellant's disclosure discusses certain problems in the treatment of power-driven rotary brushes. According to the disclosure, it was desirable to produce ****1383**

(Cite as: 57 C.C.P.A. 1029, *1029, 424 F.2d 1382, **1383)

a composition for treating the brush bristles, whereby the ability of the bristles to hold abrasive particles would be enhanced. It discloses that the treatment composition should have a strength of adhesion to the brush bristles sufficiently great to prevent such composition from transferring excessively to the object being brushed; that the treatment material should wear at substantially the same rate as the brush bristles; that the material should have a high temperature softening point; and that the strength of adhesion between the treating composition and the abrasive particles must be sufficient to withstand the centrifugal force which normally would tend to throw the abrasive outwardly from the brush. The disclosure ***1030**

(Cite as: 57 C.C.P.A. 1029, *1030, 424 F.2d 1382, **1383)

states that previously known brush-treating compositions did not accomplish all these objectives and had a tendency to dry and lose their tackiness over a period of time, thus becoming useless for holding abrasive particles on the bristles.

The disclosure states that appellant discovered that a composition having a high temperature softening point and a high degree of tackiness could be produced if a film-forming resin were blended with a tackifier resin which was incompatible with (insoluble in) the film-forming resin. The resulting composition would have two distinct phases: a continuous phase comprised of film-forming resin, either alone or saturated with a small quantity of tackifier resin, and a dispersed phase comprised of small particles of tackifier resin. The two resins may be either completely or partially incompatible, and the disclosure states that the more insoluble the resins, the greater the tack which the composition possesses. Appellant also disclosed that certain plasticizers could be added to render the resins more incompatible, thus further increasing the tack of the composition. Finally, appellant stated that the entire composition could be dissolved in a volatile solvent to allow easy application to the brush, the solvent being one which quickly evaporates upon such application.

The specification contains a list of suitable film-forming resins, including ethyl cellulose, nitro cellulose, cellulose acetate, polyvinyl acetate and cis-polyisoprene, among other materials. A list of tackifiers is given, including certain esters of abietic acid, polyvinyl ethyl ether, coumarone indene resin and terpene resins. A list of plasticizers is also given. The specification then gives four examples showing how to combine various film-formers, tackifiers, plasticizers and solvents to obtain brush-treating compositions of the desired characteristics, and explains how to apply them to brushes.

THE CLAIMS

In view of the result we reach, we find that claims 1 and 8 are representative:

1. A two-phase brush treating composition having a high softening point and sufficient tack to retain abrasive material firmly adhered to brush fill material comprising a film-forming resin and a tackifier resin which is incompatible with said film-forming resin, said two phases comprising a continuous phase formed of said film-forming resin and a dispersed phase formed of small particles of tackifier resin.
8. In combination, a rotary brush having brush fill material and a two-phase pressure sensitive adhesive brush treating composition adhered thereto having a high softening point and sufficient tack to retain abrasive material firmly adhered to such brush fill material comprising a film-forming resin and a tackifier resin which is incompatible with said film-forming resin, said two phases ***1031**

(Cite as: 57 C.C.P.A. 1029, *1031, 424 F.2d 1382, **1383)

comprising a continuous phase formed of said film-forming resin and a dispersed phase formed of small particles of tackifier resin.

****1384**

(Cite as: 57 C.C.P.A. 1029, *1031, 424 F.2d 1382, **1384)

The remaining claims on appeal are narrower, containing recitations of specific resins, plasticizers, etc.

THE PRIOR ART

Grantham [FN1] relates to coatings for film material and discloses a coating composition comprising a cellulose derivative film-former, a blending resin, a plasticizer, and an organic solvent. Grantham teaches that the blending agent and the film-former should be compatible.

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this adhesive can be water soluble or dispersed as particles. * * * The chemistry of the adhesive component is not critical to this invention. The important thing is that the deposited film shall be tacky and adhesive.

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FN3. U.S.Pat. 3,015,638, issued January 2, 1962.

Vaughan [FN4] teaches impregnating a fibrous buffing wheel with an aqueous emulsion consisting of a tacky resin and an emulsifier or stabilizer such as glue or gum.

FN4. U.S.Pat. 2,890,136, issued June 9, 1959.

THE BOARD

The board found the composition claims to be unpatentable over Depew, Sergi or Grantham under 35 U.S.C. § 103. The board reached this conclusion after noting that each of the three references shows some of the film-formers, tackifiers, plasticizers and solvents appearing in appellant's lists. The board found that the recited limitation of incompatibility was too relative a term to distinguish over the compositions of the references.

The board found that the claims to the treated brush were unpatentable, under 35 U.S.C. § 103, over Vaughan in view of Sergi or Depew. Since Vaughan shows treating brushes, the board apparently considered *1032

— (Cite as: 57 C.C.P.A. 1029, *1032, 424 F.2d 1382, **1384) —

it obvious to treat brushes with compositions which it thought were made obvious by Sergi or Depew.

The board also affirmed the rejection of certain claims for being 'broader than the disclosure' under 35 U.S.C. § 112. The board's basis for this rejection was that the specification did not provide adequate guidelines for making a selection among the various disclosed ingredients, nor among other materials which are not disclosed but would be included by the claims.

OPINION



[1] We first treat the rejection under section 112. This rejection is in effect an attack on the specification as being insufficient to teach how to practice the broad invention claimed. The rejection is therefore under the first paragraph of section 112. The board's position, as mentioned above, was that the specification did not teach how to select ingredients so that the desired incompatibility would result. We disagree with the board's position on this point. First of all, appellant provided four examples, each specifying the nature and amounts of materials to be used. Secondly, the record indicates that it involves only routine experimentation to find out which resins are incompatible. The examiner admitted as much when, **1385

— (Cite as: 57 C.C.P.A. 1029, *1032, 424 F.2d 1382, **1385) —

with regard to obviousness, he said 'selecting the proper tackifier and film-forming resin from those listed in the references to form an emulsion or two-phase composition would be within the expected skill of the art and would merely involve routine experimentation.' We conclude that appellant has provided a sufficient specification to support the claims here in issue.



[2] [3] [4] Turning to the rejection of the claims for obviousness, we again disagree with the board's position. The board has disregarded the term 'incompatible,' as used in the claims, because it is 'too relative' to distinguish over the compositions of the references. Appellant contends this limitation is essential in defining his invention. There has been no rejection here for indefiniteness, under the second paragraph of section 112. Rather than reject the claims as indefinite, the board chose to ignore the language it considered indefinite, and proceeded as though that language were not in the claims. The board said, in effect, that since we do not know what 'incompatible' means, and the rest of the claim defines obvious subject matter, there is no basis for concluding unobviousness. This reasoning is incorrect. All words in a claim must be considered in judging the patentability of that claim against the prior art. If no reasonably definite meaning can be ascribed to certain terms in the claim, the subject matter does not become obvious-- the claim becomes indefinite. In the present case, we think the *1033

— (Cite as: 57 C.C.P.A. 1029, *1033, 424 F.2d 1382, **1385) —

term 'incompatible' is defined with reasonable definiteness in the specification. While it is true that the word is not perfectly precise, under the circumstances of the present case there appears to be no other way for appellant to describe his discovery. In any event, the ignoring of this term by the board renders its conclusion of obviousness unsupported. None of the references discloses a two-phase composition of incompatible resins or suggests that such a composition would have the properties disclosed by appellant. Grantham and Sergi both expressly teach that the components of their compositions should be compatible. Neither Vaughan nor Depew uses a resin as the continuous phase. While Depew states, as quoted above, that the adhesive material may be dispersed as particles in the continuous phase, and hence be incompatible with the continuous phase material, it cannot be ignored that Depew's continuous phase is of water, not a film-forming resin as recited in appellant's claims. Furthermore, there is no

suggestion in Depew or Vaughan that there are advantages in using an adhesive which is insoluble in the aqueous phase. There is nothing of record, therefore, from which we can properly conclude that the subject matter of appellant's claims would have been obvious at the time of his invention. The decision of the board must accordingly be reversed.

***1029**

(Cite as: 57 C.C.P.A. 1029, *1029, 424 F.2d 1382, **1385)

Reversed.

Cust. & Pat.App., 1970.

Application of Wilson,
57 C.C.P.A. 1029, 424 F.2d 1382, 165 U.S.P.Q. 494

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West Reporter Image (PDF)

(Cite as: 966 F.2d 656)

966 F.2d 656, 23 U.S.P.Q.2d 1058

United States Court of Appeals,
Federal Circuit.
In re Carl D. CLAY.
No. 91-1402.
June 10, 1992.

Appeal was taken from decision of Board of Patent Appeals and Interferences affirming rejection of claims of patents for process for storing refined liquid hydrocarbon product in storage tank having dead volume between tank bottom and outlet port as being unpatentable because of obviousness. The Court of Appeals, Lourie, Circuit Judge, held that patent was not rendered obvious by prior invention using gel to channel flow of petroleum in naturally occurring underground reservoirs.

Reversed.

West Headnotes

[1] KeyCite Notes

- ☞ 291 Patents
 - ☞ 291XII Infringement
 - ☞ 291XII(C) Suits in Equity
 - ☞ 291k314 Hearing
 - ☞ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

Although conclusion that invention would have been obvious from combined teachings of prior art is one of law, such determinations are made against background to several factual inquiries, one of which is scope and content of prior art.

[2] KeyCite Notes

- ☞ 291 Patents
 - ☞ 291XII Infringement
 - ☞ 291XII(C) Suits in Equity
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 - ☞ 291k324 Appeal
 - ☞ 291k324.55 Questions of Fact, Verdicts, and Findings
 - ☞ 291k324.55(2) k. Clearly Erroneous Findings. Most Cited Cases

Whether referenced prior art is "analogous" is a fact question and, therefore, Court of Appeals for the Federal Circuit reviews decision of Patent and Trademark Office Board of Patent Appeals and Interferences on that point under clearly erroneous standard. 35 U.S.C.A. § 103.

[3] KeyCite Notes

- ☞ 291 Patents

↳ 291II Patentability

↳ 291II(A) Invention; Obviousness

↳ 291k16 Invention and Obviousness in General

↳ 291k16(2) k. Prior Art in General. Most Cited Cases

Criteria to be considered in determining whether prior art is analogous under statute rendering a patent invalid based on obviousness are whether art is from same field of endeavor, regardless of problem addressed, and if reference is not within field of inventor's endeavor, whether reference still is reasonably pertinent to particular problem with which inventor is involved. 35 U.S.C.A. § 103.



[4] KeyCite Notes

↳ 291 Patents

↳ 291II Patentability

↳ 291II(A) Invention; Obviousness

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Patent for process of using gel in storing refined liquid hydrocarbon products in storage tanks was not rendered obvious by prior invention using gel to channel flow of petroleum in naturally occurring underground reservoir; prior invention was not within same field of endeavor as patentee's process and was not reasonably pertinent to problem patentee attempted to solve. 35 U.S.C.A. § 103.



[5] KeyCite Notes

↳ 291 Patents

↳ 291II Patentability

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↳ 291k16(2) k. Prior Art in General. Most Cited Cases

Prior art reference is reasonably pertinent, for purposes of determining whether prior art is analogous so as to render patent invalid for obviousness, is, even though it may be from different field from that of inventor's endeavor, it is one which, because of matter with which it deals, logically would have commended itself to inventor's intent in considering his problem. 35 U.S.C.A. § 103.



KeyCite Notes

↳ 291 Patents

↳ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents

↳ 291k328 Patents Enumerated

↳ 291k328(2) k. Original. Most Cited Cases

4,664,294, 4,683,949. Prior art.

***657**

— (Cite as: 966 F.2d 656, *657) —

Jack E. Ebel, Marathon Oil Co., Littleton, Colo., argued, for appellant. With him on the brief, was Paul T. Meiklejohn, Seed & Berry, Seattle, Wash., of counsel.

Teddy S. Gron, Associate Sol., Office of Sol., Arlington, Va., argued, for appellee. With him on the brief, was Fred E. McKelvey, Sol. Of counsel was Richard E. Schafer.

Before PLAGER, LOURIE, and CLEVINGER, Circuit Judges.

LOURIE, Circuit Judge.

Carl D. Clay appeals the decision of the United States Patent and Trademark Office, Board of Patent Appeals and Interferences, Appeal No. 90- 2262, affirming the rejection of claims 1-11 and 13 as being unpatentable under 35 U.S.C. § 103. These are all the remaining claims in application Serial No. 245,083, filed April 28, 1987, entitled "Storage of a Refined Liquid Hydrocarbon Product." We reverse.

BACKGROUND

Clay's invention, assigned to Marathon Oil Company, is a process for storing refined liquid hydrocarbon product in a storage tank having a dead volume between the tank bottom and its outlet port. The process involves preparing a gelation solution which gels after it is placed in the tank's dead volume; the gel can easily be removed by adding to the tank a gel-degrading agent such as hydrogen peroxide. Claims 1, 8, and 11 are illustrative of the claims on appeal:

1. A process for storing a refined liquid hydrocarbon product in a storage tank having a dead volume between the bottom of said tank and an outlet port in said tank, said process comprising: preparing a gelation solution comprising an aqueous liquid solvent, an acrylamide polymer and a crosslinking agent containing a polyvalent metal cation selected from the group consisting of aluminum, chromium and mixtures thereof, said gelation solution capable of forming a rigid crosslinked polymer gel which is *658

(Cite as: 966 F.2d 656, *658)

substantially insoluble and inert in said refined liquid hydrocarbon product; placing said solution in said dead volume; gelling said solution substantially to completion in said dead volume to produce said rigid gel which substantially fills said dead volume; and storing said refined liquid hydrocarbon product in said storage tank in contact with said gel without substantially contaminating said product with said gel and without substantially degrading said gel.

8. The process of claim 1 further comprising removing said rigid gel from said dead volume by contacting said gel with a chemical agent which substantially degrades said gel to a flowing solution.

11. The process of claim 1 wherein said gelation solution further comprises an aqueous liquid contaminant present in said dead volume which dissolves in said solution when said solution is placed in said dead volume.

Two prior art references were applied against the claims on appeal. They were U.S. Patent 4,664,294 (Hetherington), which discloses an apparatus for displacing dead space liquid using impervious bladders, or large bags, formed with flexible membranes; and U.S. Patent 4,683,949 (Sydansk), also assigned to Clay's assignee, Marathon Oil Company, which discloses a process for reducing the permeability of hydrocarbon-bearing formations and thus improving oil production, using a gel similar to that in Clay's invention.

The Board agreed with the examiner that, although neither reference alone describes Clay's invention, Hetherington and Sydansk combined support a conclusion of obviousness. It held that one skilled in the art would glean from Hetherington that Clay's invention "was appreciated in the prior art and solutions to that problem generally involved filling the dead space with *something*." Opinion at 3 (emphasis in original).

The Board also held that Sydansk would have provided one skilled in the art with information that a gelation system would have been impervious to hydrocarbons once the system gelled. The Board combined the references, finding that the "cavities" filled by Sydansk are sufficiently similar to the "volume or void space" being filled by Hetherington for one of ordinary skill to have recognized the applicability of the gel to Hetherington.

DISCUSSION



[1] The issue presented in this appeal is whether the Board's conclusion was correct that Clay's invention would have been obvious from the combined teachings of Hetherington and Sydansk. Although this conclusion is one of law, such determinations are made against a background of several factual inquiries, one of which is the scope and content of the prior art. Graham v. John Deere Co., 383 U.S. 1, 17, 86 S.Ct. 684, 693-94, 15 L.Ed.2d 545, 148 USPQ 459, 467 (1966).

A prerequisite to making this finding is determining what is "prior art," in order to consider whether "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103. Although § 103 does not, by its terms, define the "art to which [the] subject matter [sought to be patented] pertains," this determination is frequently couched in terms of whether the art is analogous or not, i.e., whether the art is "too remote to be treated as prior art." In re Sovish, 769 F.2d 738, 741, 226 USPQ 771, 773 (Fed.Cir.1985).



[2] Clay argues that the claims at issue were improperly rejected over Hetherington and Sydansk, because Sydansk is nonanalogous art. Whether a reference in the prior art is "analogous" is a fact question. Panduit Corp. v. Dennison Mfg., 810 F.2d 1561, 1568 n. 9, 1 USPQ2d 1593, 1597 n. 9 (Fed.Cir.), cert. denied, 481 U.S. 1052, 107 S.Ct. 2187, 95 L.Ed.2d 843 (1987). Thus, we review the Board's decision on this point under the clearly erroneous standard.



[3] Two criteria have evolved for determining whether prior art is analogous: (1) *659

(Cite as: 966 F.2d 656, *659)

whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. *In re Deminski*, 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed.Cir.1986); *In re Wood*, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979).



[4] The Board found Sydansk to be within the field of Clay's endeavor because, as the Examiner stated, "one of ordinary skill in the art would certainly glean from [Sydansk] that the rigid gel as taught therein would have a number of applications within the manipulation of the storage and processing of hydrocarbon liquids ... [and that] the gel as taught in Sydansk would be expected to function in a similar manner as the bladders in the Hetherington patent." These findings are clearly erroneous.

The PTO argues that Sydansk and Clay's inventions are part of a common endeavor--"maximizing withdrawal of petroleum stored in petroleum reservoirs." However, Sydansk cannot be considered to be within Clay's field of endeavor merely because both relate to the petroleum industry. Sydansk teaches the use of a gel in unconfined and irregular volumes within generally underground natural oil-bearing formations to channel flow in a desired direction; Clay teaches the introduction of gel to the confined dead volume of a man-made storage tank. The Sydansk process operates in extreme conditions, with petroleum formation temperatures as high as 115 <<degrees>> C and at significant well bore pressures; Clay's process apparently operates at ambient temperature and atmospheric pressure. Clay's field of endeavor is the storage of refined liquid hydrocarbons. The field of endeavor of Sydansk's invention, on the other hand, is the extraction of crude petroleum. The Board clearly erred in considering Sydansk to be within the same field of endeavor as Clay's.



[5] Even though the art disclosed in Sydansk is not within Clay's field of endeavor, the reference may still properly be combined with Hetherington if it is reasonably pertinent to the problem Clay attempts to solve. *In re Wood*, 599 F.2d at 1036, 202 USPQ at 174. A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commanded itself to an inventor's attention in considering his problem. Thus, the purposes of both the invention and the prior art are important in determining whether the reference is reasonably pertinent to the problem the invention attempts to solve. If a reference disclosure has the same purpose as the claimed invention, the reference relates to the same problem, and that fact supports use of that reference in an obviousness rejection. An inventor may well have been motivated to consider the reference when making his invention. If it is directed to a different purpose, the inventor would accordingly have had less motivation or occasion to consider it. Sydansk's gel treatment of underground formations functions to fill anomalies [FN1] so as to improve flow profiles and sweep efficiencies of injection and production fluids through a formation, while Clay's gel functions to displace liquid product from the dead volume of a storage tank. Sydansk is concerned with plugging formation anomalies so that fluid is subsequently diverted by the gel into the formation matrix, thereby forcing bypassed oil contained in the matrix toward a production well. Sydansk is faced with the problem of recovering oil from rock, i.e., from a matrix which is porous, permeable sedimentary rock of a subterranean formation where water has channeled through formation anomalies and bypassed oil present in the matrix. Such a problem is not reasonably pertinent to the particular problem with which Clay was involved--preventing loss of stored *660

(Cite as: 966 F.2d 656, *660)

product to tank dead volume while preventing contamination of such product. Moreover, the subterranean formation of Sydansk is not structurally similar to, does not operate under the same temperature and pressure as, and does not function like Clay's storage tanks. See *In re Ellis*, 476 F.2d 1370, 1372, 177 USPQ 526, 527 (CCPA 1973) ("the similarities and differences in structure and function of the invention disclosed in the references ... carry far greater weight [in determining analogy]").

FN1. Sydansk refers to an anomaly, one of two general region types in an oil-bearing geological formation, as "a volume or void space [e.g., 'streaks, fractures, fracture networks, vugs, solution channels, caverns, washouts, cavities, etc.'] in the formation having very high permeability relative to the matrix [the other region type, consisting of homogeneous porous rock]."

A person having ordinary skill in the art would not reasonably have expected to solve the problem of dead volume in tanks for storing refined petroleum by considering a reference dealing with plugging underground formation

anomalies. The Board's finding to the contrary is clearly erroneous. Since Sydansk is non-analogous art, the rejection over Hetherington in view of Sydansk cannot be sustained.

CONCLUSION

For the foregoing reasons, the decision of the Board is

REVERSED.

C.A.Fed.,1992.

In re Clay

966 F.2d 656, 23 U.S.P.Q.2d 1058

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[West-Reporter Image \(PDF\)](#)

(Cite as: 966 F.2d 656)

966 F.2d 656, 23 U.S.P.Q.2d 1058

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Reversed.

West Headnotes

[\[1\] KeyCite Notes](#)

- ⌚ [291 Patents](#)
- ⌚ [291XII Infringement](#)
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- ⌚ [291k314 Hearing](#)
- ⌚ [291k314\(5\) k. Questions of Law or Fact. Most Cited Cases](#)

Although conclusion that invention would have been obvious from combined teachings of prior art is one of law, such determinations are made against background to several factual inquiries, one of which is scope and content of prior art.

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Criteria to be considered in determining whether prior art is analogous under statute rendering a patent invalid based on obviousness are whether art is from same field of endeavor, regardless of problem addressed, and if reference is not within field of inventor's endeavor, whether reference still is reasonably pertinent to particular problem with which inventor is involved. 35 U.S.C.A. § 103.



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KeyCite Notes

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291k328 Patents Enumerated

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***657**

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Before PLAGER, LOURIE, and CLEVENGER, Circuit Judges.

LOURIE, Circuit Judge.

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BACKGROUND

Clay's invention, assigned to Marathon Oil Company, is a process for storing refined liquid hydrocarbon product in a storage tank having a dead volume between the tank bottom and its outlet port. The process involves preparing a gelation solution which gels after it is placed in the tank's dead volume; the gel can easily be removed by adding to the tank a gel-degrading agent such as hydrogen peroxide. Claims 1, 8, and 11 are illustrative of the claims on appeal:

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substantially insoluble and inert in said refined liquid hydrocarbon product; placing said solution in said dead volume; gelling said solution substantially to completion in said dead volume to produce said rigid gel which substantially fills said dead volume; and

storing said refined liquid hydrocarbon product in said storage tank in contact with said gel without substantially contaminating said product with said gel and without substantially degrading said gel.

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DISCUSSION



[1] The issue presented in this appeal is whether the Board's conclusion was correct that Clay's invention would have been obvious from the combined teachings of Hetherington and Sydansk. Although this conclusion is one of law, such determinations are made against a background of several factual inquiries, one of which is the scope and content of the prior art. Graham v. John Deere Co., 383 U.S. 1, 17, 86 S.Ct. 684, 693-94, 15 L.Ed.2d 545, 148 USPQ 459, 467 (1966).

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[5] Even though the art disclosed in Sydansk is not within Clay's field of endeavor, the reference may still properly be combined with Hetherington if it is reasonably pertinent to the problem Clay attempts to solve. *In re Wood*, 599 F.2d at 1036, 202 USPQ at 174. A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem. Thus, the purposes of both the invention and the prior art are important in determining whether the reference is reasonably pertinent to the problem the invention attempts to solve. If a reference disclosure has the same purpose as the claimed invention, the reference relates to the same problem, and that fact supports use of that reference in an obviousness rejection. An inventor may well have been motivated to consider the reference when making his invention. If it is directed to a different purpose, the inventor would accordingly have had less motivation or occasion to consider it. Sydansk's gel treatment of underground formations functions to fill anomalies [FN1] so as to improve flow profiles and sweep efficiencies of injection and production fluids through a formation, while Clay's gel functions to displace liquid product from the dead volume of a storage tank. Sydansk is concerned with plugging formation anomalies so that fluid is subsequently diverted by the gel into the formation matrix, thereby forcing bypassed oil contained in the matrix toward a production well. Sydansk is faced with the problem of recovering oil from rock, *i.e.*, from a matrix which is porous, permeable sedimentary rock of a subterranean formation where water has channeled through formation anomalies and bypassed oil present in the matrix. Such a problem is not reasonably pertinent to the particular problem with which Clay was involved--preventing loss of stored *660

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anomalies. The Board's finding to the contrary is clearly erroneous. Since Sydansk is non-analogous art, the rejection over Hetherington in view of Sydansk cannot be sustained.

CONCLUSION

For the foregoing reasons, the decision of the Board is

REVERSED.

C.A.Fed., 1992.

In re Clay

966 F.2d 656, 23 U.S.P.Q.2d 1058

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(Cite as: 966 F.2d 656)

966 F.2d 656, 23 U.S.P.Q.2d 1058

United States Court of Appeals,
Federal Circuit.
In re Carl D. CLAY.
No. 91-1402.
June 10, 1992.

Appeal was taken from decision of Board of Patent Appeals and Interferences affirming rejection of claims of patents for process for storing refined liquid hydrocarbon product in storage tank having dead volume between tank bottom and outlet port as being unpatentable because of obviousness. The Court of Appeals, Lourie, Circuit Judge, held that patent was not rendered obvious by prior invention using gel to channel flow of petroleum in naturally occurring underground reservoirs.

Reversed.

West Headnotes

[1] KeyCite Notes

- ◆ 291 Patents
 - ◆ 291XII Infringement
 - ◆ 291XII(C) Suits in Equity
 - ◆ 291k314 Hearing
 - ◆ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

Although conclusion that invention would have been obvious from combined teachings of prior art is one of law, such determinations are made against background to several factual inquiries, one of which is scope and content of prior art.

[2] KeyCite Notes

- ◆ 291 Patents
 - ◆ 291XII Infringement
 - ◆ 291XII(C) Suits in Equity
 - ◆ 291k314 Hearing
 - ◆ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

- ◆ 291 Patents
 - ◆ 291XII Infringement
 - ◆ 291XII(C) Suits in Equity
 - ◆ 291k324 Appeal
 - ◆ 291k324.55 Questions of Fact, Verdicts, and Findings
 - ◆ 291k324.55(2) k. Clearly Erroneous Findings. Most Cited Cases

Whether referenced prior art is "analogous" is a fact question and, therefore, Court of Appeals for the Federal Circuit reviews decision of Patent and Trademark Office Board of Patent Appeals and Interferences on that point under clearly erroneous standard. 35 U.S.C.A. § 103.

[3] KeyCite Notes

- ◆ 291 Patents

291II Patentability

291II(A) Invention; Obviousness

291k16 Invention and Obviousness in General

291k16(2) k. Prior Art in General. Most Cited Cases

Criteria to be considered in determining whether prior art is analogous under statute rendering a patent invalid based on obviousness are whether art is from same field of endeavor, regardless of problem addressed, and if reference is not within field of inventor's endeavor, whether reference still is reasonably pertinent to particular problem with which inventor is involved. 35 U.S.C.A. § 103.



[4] KeyCite Notes

291 Patents

291II Patentability

291II(A) Invention; Obviousness

291k16 Invention and Obviousness in General

291k16(2) k. Prior Art in General. Most Cited Cases

Patent for process of using gel in storing refined liquid hydrocarbon products in storage tanks was not rendered obvious by prior invention using gel to channel flow of petroleum in naturally occurring underground reservoir; prior invention was not within same field of endeavor as patentee's process and was not reasonably pertinent to problem patentee attempted to solve. 35 U.S.C.A. § 103.



[5] KeyCite Notes

291 Patents

291II Patentability

291II(A) Invention; Obviousness

291k16 Invention and Obviousness in General

291k16(2) k. Prior Art in General. Most Cited Cases

Prior art reference is reasonably pertinent, for purposes of determining whether prior art is analogous so as to render patent invalid for obviousness, is, even though it may be from different field from that of inventor's endeavor, it is one which, because of matter with which it deals, logically would have commended itself to inventor's intent in considering his problem. 35 U.S.C.A. § 103.



KeyCite Notes

291 Patents

291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents

291k328 Patents Enumerated

291k328(2) k. Original. Most Cited Cases

4,664,294, 4,683,949. Prior art.

***657**

(Cite as: 966 F.2d 656, *657)

Jack E. Ebel, Marathon Oil Co., Littleton, Colo., argued, for appellant. With him on the brief, was Paul T. Meiklejohn, Seed & Berry, Seattle, Wash., of counsel.

Teddy S. Gron, Associate Sol., Office of Sol., Arlington, Va., argued, for appellee. With him on the brief, was Fred E. McKelvey, Sol. Of counsel was Richard E. Schafer.

Before PLAGER, LOURIE, and CLEVINGER, Circuit Judges.

LOURIE, Circuit Judge.

Carl D. Clay appeals the decision of the United States Patent and Trademark Office, Board of Patent Appeals and Interferences, Appeal No. 90- 2262, affirming the rejection of claims 1-11 and 13 as being unpatentable under 35 U.S.C. § 103. These are all the remaining claims in application Serial No. 245,083, filed April 28, 1987, entitled "Storage of a Refined Liquid Hydrocarbon Product." We reverse.

BACKGROUND

Clay's invention, assigned to Marathon Oil Company, is a process for storing refined liquid hydrocarbon product in a storage tank having a dead volume between the tank bottom and its outlet port. The process involves preparing a gelation solution which gels after it is placed in the tank's dead volume; the gel can easily be removed by adding to the tank a gel-degrading agent such as hydrogen peroxide. Claims 1, 8, and 11 are illustrative of the claims on appeal:

1. A process for storing a refined liquid hydrocarbon product in a storage tank having a dead volume between the bottom of said tank and an outlet port in said tank, said process comprising: preparing a gelation solution comprising an aqueous liquid solvent, an acrylamide polymer and a crosslinking agent containing a polyvalent metal cation selected from the group consisting of aluminum, chromium and mixtures thereof, said gelation solution capable of forming a rigid crosslinked polymer gel which is *658

(Cite as: 966 F.2d 656, *658)

substantially insoluble and inert in said refined liquid hydrocarbon product; placing said solution in said dead volume; gelling said solution substantially to completion in said dead volume to produce said rigid gel which substantially fills said dead volume; and storing said refined liquid hydrocarbon product in said storage tank in contact with said gel without substantially contaminating said product with said gel and without substantially degrading said gel.

8. The process of claim 1 further comprising removing said rigid gel from said dead volume by contacting said gel with a chemical agent which substantially degrades said gel to a flowing solution.

11. The process of claim 1 wherein said gelation solution further comprises an aqueous liquid contaminant present in said dead volume which dissolves in said solution when said solution is placed in said dead volume.

Two prior art references were applied against the claims on appeal. They were U.S. Patent 4,664,294 (Hetherington), which discloses an apparatus for displacing dead space liquid using impervious bladders, or large bags, formed with flexible membranes; and U.S. Patent 4,683,949 (Sydansk), also assigned to Clay's assignee, Marathon Oil Company, which discloses a process for reducing the permeability of hydrocarbon-bearing formations and thus improving oil production, using a gel similar to that in Clay's invention.

The Board agreed with the examiner that, although neither reference alone describes Clay's invention, Hetherington and Sydansk combined support a conclusion of obviousness. It held that one skilled in the art would glean from Hetherington that Clay's invention "was appreciated in the prior art and solutions to that problem generally involved filling the dead space with *something*." Opinion at 3 (emphasis in original).

The Board also held that Sydansk would have provided one skilled in the art with information that a gelation system would have been impervious to hydrocarbons once the system gelled. The Board combined the references, finding that the "cavities" filled by Sydansk are sufficiently similar to the "volume or void space" being filled by Hetherington for one of ordinary skill to have recognized the applicability of the gel to Hetherington.

DISCUSSION

[1] KC The issue presented in this appeal is whether the Board's conclusion was correct that Clay's invention would have been obvious from the combined teachings of Hetherington and Sydansk. Although this conclusion is one of law, such determinations are made against a background of several factual inquiries, one of which is the scope and content of the prior art. Graham v. John Deere Co., 383 U.S. 1, 17, 86 S.Ct. 684, 693-94, 15 L.Ed.2d 545, 148 USPQ 459, 467 (1966).

A prerequisite to making this finding is determining what is "prior art," in order to consider whether "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103. Although § 103 does not, by its terms, define the "art to which [the] subject matter [sought to be patented] pertains," this determination is frequently couched in terms of whether the art is analogous or not, *i.e.*, whether the art is "too remote to be treated as prior art." In re Sovish, 769 F.2d 738, 741, 226 USPQ 771, 773 (Fed.Cir.1985).

[2] KC Clay argues that the claims at issue were improperly rejected over Hetherington and Sydansk, because Sydansk is nonanalogous art. Whether a reference in the prior art is "analogous" is a fact question. Panduit Corp. v. Dennison Mfg., 810 F.2d 1561, 1568 n. 9, 1 USPQ2d 1593, 1597 n. 9 (Fed.Cir.), cert. denied, 481 U.S. 1052, 107 S.Ct. 2187, 95 L.Ed.2d 843 (1987). Thus, we review the Board's decision on this point under the clearly erroneous standard.

[3] Two criteria have evolved for determining whether prior art is analogous: (1) *659

(Cite as: 966 F.2d 656, *659)

whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. *In re Deminski*, 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed.Cir.1986); *In re Wood*, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979).

[4] The Board found Sydansk to be within the field of Clay's endeavor because, as the Examiner stated, "one of ordinary skill in the art would certainly glean from [Sydansk] that the rigid gel as taught therein would have a number of applications within the manipulation of the storage and processing of hydrocarbon liquids ... [and that] the gel as taught in Sydansk would be expected to function in a similar manner as the bladders in the Hetherington patent." These findings are clearly erroneous.

The PTO argues that Sydansk and Clay's inventions are part of a common endeavor--"maximizing withdrawal of petroleum stored in petroleum reservoirs." However, Sydansk cannot be considered to be within Clay's field of endeavor merely because both relate to the petroleum industry. Sydansk teaches the use of a gel in unconfined and irregular volumes within generally underground natural oil-bearing formations to channel flow in a desired direction; Clay teaches the introduction of gel to the confined dead volume of a man-made storage tank. The Sydansk process operates in extreme conditions, with petroleum formation temperatures as high as 115 <<degrees>> C and at significant well bore pressures; Clay's process apparently operates at ambient temperature and atmospheric pressure. Clay's field of endeavor is the *storage* of refined liquid hydrocarbons. The field of endeavor of Sydansk's invention, on the other hand, is the *extraction* of crude petroleum. The Board clearly erred in considering Sydansk to be within the same field of endeavor as Clay's.

[5] Even though the art disclosed in Sydansk is not within Clay's field of endeavor, the reference may still properly be combined with Hetherington if it is reasonably pertinent to the problem Clay attempts to solve. *In re Wood*, 599 F.2d at 1036, 202 USPQ at 174. A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem. Thus, the purposes of both the invention and the prior art are important in determining whether the reference is reasonably pertinent to the problem the invention attempts to solve. If a reference disclosure has the same purpose as the claimed invention, the reference relates to the same problem, and that fact supports use of that reference in an obviousness rejection. An inventor may well have been motivated to consider the reference when making his invention. If it is directed to a different purpose, the inventor would accordingly have had less motivation or occasion to consider it. Sydansk's gel treatment of underground formations functions to fill anomalies [FN1] so as to improve flow profiles and sweep efficiencies of injection and production fluids through a formation, while Clay's gel functions to displace liquid product from the dead volume of a storage tank. Sydansk is concerned with plugging formation anomalies so that fluid is subsequently diverted by the gel into the formation matrix, thereby forcing bypassed oil contained in the matrix toward a production well. Sydansk is faced with the problem of recovering oil from rock, *i.e.*, from a matrix which is porous, permeable sedimentary rock of a subterranean formation where water has channeled through formation anomalies and bypassed oil present in the matrix. Such a problem is not reasonably pertinent to the particular problem with which Clay was involved--preventing loss of stored *660

(Cite as: 966 F.2d 656, *660)

product to tank dead volume while preventing contamination of such product. Moreover, the subterranean formation of Sydansk is not structurally similar to, does not operate under the same temperature and pressure as, and does not function like Clay's storage tanks. See *In re Ellis*, 476 F.2d 1370, 1372, 177 USPQ 526, 527 (CCPA 1973) ("the similarities and differences in structure and function of the invention disclosed in the references ... carry far greater weight [in determining analogy]").

FN1. Sydansk refers to an anomaly, one of two general region types in an oil-bearing geological formation, as "a volume or void space [e.g., 'streaks, fractures, fracture networks, vugs, solution channels, caverns, washouts, cavities, etc.]' in the formation having very high permeability relative to the matrix [the other region type, consisting of homogeneous porous rock]."

A person having ordinary skill in the art would not reasonably have expected to solve the problem of dead volume in tanks for storing refined petroleum by considering a reference dealing with plugging underground formation

anomalies. The Board's finding to the contrary is clearly erroneous. Since Sydansk is non-analogous art, the rejection over Hetherington in view of Sydansk cannot be sustained.

CONCLUSION

For the foregoing reasons, the decision of the Board is

REVERSED.

C.A.Fed., 1992.

In re Clay

966 F.2d 656, 23 U.S.P.Q.2d 1058

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(Cite as: 993 F.2d 858)

993 F.2d 858, 26 U.S.P.Q.2d 1767

Briefs and Other Related Documents

United States Court of Appeals,
Federal Circuit.

WANG LABORATORIES, INC., Plaintiff/Cross-Appellant,
v.

TOSHIBA CORPORATION; Toshiba America Electronic Components, Inc.; Toshiba
America Information Systems, Inc., Defendants-Appellants,
and

NEC Corporation; NEC Electronics Inc. and NEC Technologies, Inc., Defendants-
Appellants,
and

Molex Incorporated, Defendant.

Nos. 92-1006, 92-1008 and 92-1025.

May 10, 1993.

Rehearing Denied; Suggestion for Rehearing In Banc Declined June 28, 1993.

Manufacturer of computer memory modules brought patent infringement action against two competitors. The United States District Court for the Eastern District of Virginia, Thomas Selby Ellis, III, J., entered judgment for patentee and awarded reasonable royalty as damages. Competitors appealed issues of validity and infringement, and patentee cross-appealed to amend judgment as to damages. The Court of Appeals, Lourie, Circuit Judge, held that: (1) competitors failed to show that claimed subject matter would have been obvious to person having ordinary skill in art at time inventions were made; (2) substantial evidence supported verdict that written description requirement for patents was met; (3) prosecution history estoppel barred patentee from enforcing its claims to infringement under doctrine of equivalents as applied to lateral and three-packed memory modules; and (4) district court abused its discretion in determining reasonable royalty rate from date of notice, rather than from date patent was issued. Affirmed in part, reversed in part, and remanded in part.

West Headnotes**[1] KeyCite Notes****170B Federal Courts****170BVIII Courts of Appeals****170BVIII(K) Scope, Standards, and Extent****170BVIII(K)5 Questions of Fact, Verdicts and Findings****170Bk846 k. Substantial Evidence. Most Cited Cases**

Fact-findings reviewed under substantial evidence standard require affirmance unless appellants show that no reasonable juror could have reached result.

**[2] KeyCite Notes****291 Patents****291XII Infringement****291XII(C) Suits in Equity****291k314 Hearing****291k314(5) k. Questions of Law or Fact. Most Cited Cases**

Nonobviousness of patent claim is legal conclusion, having factual underpinnings, including scope and content of

prior art.



[3] KeyCite Notes

- ↳ 291 Patents
 - ↳ 291XII Infringement
 - ↳ 291XII(C) Suits in Equity
 - ↳ 291k314 Hearing
 - ↳ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

Fact that earlier patent involved memory circuits in which modules of varying sizes may be added or replaced and that subject patents involved compact modular memories provided evidence from which jury could reasonably have found that prior art was not from same field of endeavor under analogous art test. 35 U.S.C.A. § 103.



[4] KeyCite Notes

- ↳ 291 Patents
 - ↳ 291III Patentability
 - ↳ 291III(A) Invention; Obviousness
 - ↳ 291k16 Invention and Obviousness in General
 - ↳ 291k16(2) k. Prior Art in General. Most Cited Cases

Criteria relevant in determining whether prior art is analogous in considering whether patent claims are invalid for obviousness are whether art is from same field of endeavor, regardless of problem addressed, and if art is not within same field of endeavor, whether it is still reasonably pertinent to particular problem to be solved. 35 U.S.C.A. § 103.



[5] KeyCite Notes

- ↳ 291 Patents
 - ↳ 291XII Infringement
 - ↳ 291XII(C) Suits in Equity
 - ↳ 291k312 Evidence
 - ↳ 291k312(3) Weight and Sufficiency
 - ↳ 291k312(6) k. Particular Matters, Sufficiency as To. Most Cited Cases

Fact that prior art related to memory circuit for larger, more costly industrial controller than compact computer memory provided substantial evidence to support finding that prior art was not reasonably pertinent to field of personal computers for which single in-line memory modules were designed, and, not being analogous prior art, could not have rendered claimed subject matter obvious to person with ordinary skill in art at time inventions were made. 35 U.S.C.A. § 103.



[6] KeyCite Notes

- ↳ 291 Patents
 - ↳ 291XII Infringement
 - ↳ 291XII(C) Suits in Equity
 - ↳ 291k312 Evidence
 - ↳ 291k312(3) Weight and Sufficiency
 - ↳ 291k312(6) k. Particular Matters, Sufficiency as To. Most Cited Cases

Drawings showing terminals as leads, supporting memory modules, and testimony by inventor that leads on single in-line memory modules provided support means, and evidence that bottom row of terminals were support means on lead less single in-line memory modules provided substantial evidence to support verdict that written description requirement for patent claim was met, though support means were not recited in original application.



[7] KeyCite Notes

- ☛ 291 Patents
 - ☛ 291XII Infringement
 - ☛ 291XII(C) Suits in Equity
 - ☛ 291k314 Hearing
 - ☛ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

Whether written description requirement of patent claim has been met is question of fact. 35 U.S.C.A. § 112.



[8] KeyCite Notes

- ☛ 291 Patents
 - ☛ 291IV Applications and Proceedings Thereon
 - ☛ 291k99 k. Description of Invention in Specification. Most Cited Cases

Patent specification is directed to one of ordinary skill in the art. 35 U.S.C.A. § 112.



[9] KeyCite Notes

- ☛ 170B Federal Courts
 - ☛ 170BVIII Courts of Appeals
 - ☛ 170BVIII(H) Briefs
 - ☛ 170Bk712 k. Briefs in General. Most Cited Cases

Normally, issue not raised by appellant in its initial brief is waived.



[10] KeyCite Notes

- ☛ 291 Patents
 - ☛ 291IX Construction and Operation of Letters Patent
 - ☛ 291IX(B) Limitation of Claims
 - ☛ 291k168 Proceedings in Patent Office in General
 - ☛ 291k168(2) Rejection and Amendment of Claims
 - ☛ 291k168(2.1) k. In General. Most Cited Cases

Prosecution history estoppel bars patentee from enforcing its claims against otherwise legally equivalent structures if those structures were excluded by claim limitations added in order to avoid prior art.



[11] KeyCite Notes

- ☛ 291 Patents
 - ☛ 291IX Construction and Operation of Letters Patent
 - ☛ 291IX(B) Limitation of Claims
 - ☛ 291k168 Proceedings in Patent Office in General
 - ☛ 291k168(2) Rejection and Amendment of Claims
 - ☛ 291k168(2.1) k. In General. Most Cited Cases

Prosecution history estoppel barred judgment finding patent infringement under doctrine of the equivalents by sale of allegedly infringing lateral and three-pack memory modules, where patentee specifically limited scope of its claims to nine memory chips contained in single row in order to overcome prior art.

[12] KeyCite Notes↳ 291 Patents↳ 291IX Construction and Operation of Letters Patent↳ 291IX(B) Limitation of Claims↳ 291k168 Proceedings in Patent Office in General↳ 291k168(2) Rejection and Amendment of Claims↳ 291k168(2.1) k. In General. Most Cited Cases

Prosecution history must be examined as a whole in determining whether prosecution history estoppel would apply to bar patentee from enforcing its claims against otherwise legally equivalent structures.

[13] KeyCite Notes↳ 291 Patents↳ 291XII Infringement↳ 291XII(C) Suits in Equity↳ 291k324 Appeal↳ 291k324.2 k. Decisions Reviewable. Most Cited Cases

Sufficiency of evidence underlying district court's denial of JNOV on jury's verdict that leadless memory modules infringed patents was unreviewable on appeal, where allegedly infringing manufacturer failed to move for directed verdict; motion for summary judgment before trial was not substitute for motion for directed verdict at close of evidence. Fed.Rules Civ.Proc.Rules 50, 50(b), 28 U.S.C.A.

[14] KeyCite Notes↳ 291 Patents↳ 291XII Infringement↳ 291XII(C) Suits in Equity↳ 291k319 Damages↳ 291k319(1) k. In General. Most Cited Cases

District court abused its discretion in determining damages for patent infringement from date patentee gave notice to manufacturers of infringing products, rather than from date patent was issued, where infringing products were being sold on date patent was issued.

[15] KeyCite Notes↳ 291 Patents↳ 291XII Infringement↳ 291XII(C) Suits in Equity↳ 291k324 Appeal↳ 291k324.54 k. Presumptions and Discretion of Lower Court. Most Cited Cases

In reviewing district court's award of damages for patent infringement, Court of Appeals must determine if district court abused its discretion in its methodology for determining reasonable royalty rate.

[16] KeyCite Notes↳ 170B Federal Courts↳ 170BVIII Courts of Appeals↳ 170BVIII(K) Scope, Standards, and Extent

- ↳ 170B VIII(K)4 Discretion of Lower Court
- ↳ 170Bk812 k. Abuse of Discretion. Most Cited Cases

Abuse of discretion occurs when court bases its determination on clearly erroneous factual findings, legal error, or manifest error of judgment.



[17] KeyCite Notes

- ↳ 291 Patents
- ↳ 291XII Infringement
- ↳ 291XII(C) Suits in Equity
- ↳ 291k318 Profits
- ↳ 291k318(1) k. In General. Most Cited Cases

When actual damages cannot be adequately proved for patent infringement, reasonable royalty may be employed.



[18] KeyCite Notes

- ↳ 291 Patents
- ↳ 291XII Infringement
- ↳ 291XII(C) Suits in Equity
- ↳ 291k318 Profits
- ↳ 291k318(1) k. In General. Most Cited Cases

When established royalty for sale of patented article does not exist, court may determine reasonable royalty based on hypothetical negotiations between willing licensor and willing licensee.



[19] KeyCite Notes

- ↳ 291 Patents
- ↳ 291XI Regulation of Dealings in Patent Rights and Patented Articles
- ↳ 291k222 k. Marking Patented Articles. Most Cited Cases

Failure to mark patent and goods is limitation on recovery of damages, in absence of notice. 35 U.S.C.A. § 287.



KeyCite Notes

- ↳ 291 Patents
- ↳ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents
- ↳ 291k328 Patents Enumerated
- ↳ 291k328(2) k. Original Utility. Most Cited Cases

3,972,033, 4,281,392. Cited as prior art.



KeyCite Notes

- ↳ 291 Patents
- ↳ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents
- ↳ 291k328 Patents Enumerated
- ↳ 291k328(2) k. Original Utility. Most Cited Cases

4,656,605, 4,727,513. Infringed and valid.



KeyCite Notes

291 Patents

291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents

291k328 Patents Enumerated

291k328(2) k. Original Utility. Most Cited Cases

4,281,392. Cited.

*860

(Cite as: 993 F.2d 858, *860)

Thomas J. Scott, Howrey & Simon, Washington, DC, argued, for plaintiff/cross-appellant. With him on the brief, were Robert F. Ruyak, Sheila R. Schreiber and Diane B. Heller. Also on the brief, were Edward A. Grayson, Michael H. Shanahan and Paul W. Sandman, Wang Laboratories, Inc., Lowell, MA.

Edward F. McKie, Banner, Birch, McKie & Beckett, Washington, DC, argued, for defendants-appellants, Toshiba Corp. With him on the brief, were Dale H. Hoscheit, Joseph M. Skerpon, Richard J. Moura and Pamela I. Banner. Howard L. Bernstein, Sughrue, Mion, Zinn, MacPeak & Seas, Washington, DC, argued, for defendants-appellants, NEC Corp. With him on the brief, were J. Frank Osha, L. Peter Bernstein and Brett S. Sylvester.

Before ARCHER, LOURIE, and CLEVENGER, Circuit Judges.

LOURIE, Circuit Judge.

This is a patent infringement suit involving two patents on memory modules. It comes to us as a consolidated appeal and cross-appeal from the August 23, 1991 judgment, 1991 WL 333696, and the October 23, 1991 amended judgment of the United States District Court for the Eastern District of Virginia, Civil No. 90-1477-A. On August 8, 1991, a jury returned a verdict in favor of Wang Laboratories, Inc., finding U.S. Patents 4,656,605 and 4,727,513 infringed by Toshiba Corporation, Toshiba America Electronic Components, Inc., and Toshiba America Information Systems, Inc. (collectively Toshiba) and NEC Corporation, NEC Electronics Inc., and NEC Technologies, Inc. (collectively NEC), and not invalid. The jury found that NEC had willfully infringed the patents in suit, while Toshiba's infringement was not willful. On August 14, 1991, the jury determined that Wang was entitled to a reasonable royalty as compensation for the infringement and determined alternative reasonable royalty rates. On August 23, 1991, the district court entered judgment in accordance with the jury verdicts, ruled that the patents were not invalid and were infringed, and awarded a reasonable royalty as damages.

Toshiba and NEC filed post-trial motions for judgment notwithstanding the verdict (JNOV), [FN1] which the district court subsequently denied. [FN2] Wang moved to amend the judgment as to damages; this motion was also denied. Toshiba and NEC now appeal from the district court's judgment denying JNOV on the issues of validity and infringement. Wang cross-appeals the district *861

(Cite as: 993 F.2d 858, *861)

court's failure to amend the judgment as to the royalty rate. We affirm-in-part, reverse-in-part, and remand-in-part.

FN1. The case was heard and decided prior to December 1, 1991, the effective date of the amendment to Fed.R.Civ.P. 50(b), which now refers

to JNOV as judgment as a matter of law. We will use the former terminology in this opinion.

FN2. However, NEC moved for an order denying enhanced damages, and this was granted. Because Wang does not appeal this issue, NEC does not appeal the finding of willfulness.

BACKGROUND

The '605 and '513 patents, both entitled "Single In-Line Memory Module," were issued in the name of James E. Clayton and assigned to Wang. The '605 patent issued on April 7, 1987, and the '513 patent on February 23, 1988 from a continuation of the application that led to the '605 patent. [FN3]

FN3. Because of a terminal disclaimer, both patents will expire on April 7, 2004.

The patents relate to single in-line memory modules (SIMMs) having eight data memory chips capable of storing 8-bit binary words or bytes. [FN4] Additionally, the memory modules include a ninth chip, which functions as a check or parity bit for error detection. [FN5] The nine memory chips, which are packaged in plastic leaded chip carriers (PLCCs), are mounted on a single epoxy-glass printed circuit board substrate. Decoupling capacitors for suppressing voltage spikes are also mounted on the memory module substrate. Preferably, access terminals are arrayed across the bottom of the device for data input and output, data address and memory control, and device power. The '605 patent claims require that the ninth chip be interconnected with the other eight, while the '513 patent claims do not require this interconnection so that the parity chip can be written to or read from independently of the eight data chips.

FN4. In digital systems such as computers, information is stored in memory chips as binary digits (bits). Each memory chip contains thousands of memory cells, each storing a bit. An eight-bit binary word is known as a byte. Memory chips can be mounted on a substrate to form a memory module. Conventionally, a memory module for a byte contains eight memory chips.

FN5. A parity bit is commonly used for error detection in a stored byte. A bit contains either a logical "1" or "0." The parity bit signifies whether the sum of the bits in a byte is even or odd. An error may be detected by checking the odd or even count in a byte against the parity bit associated with that byte.

The '605 patent contains one claim, which reads as follows:

A memory module for installation on a printed circuit motherboard comprising:
eight data memory chips for storing digital data, each having a data input and output, a control input, and an address input, and each being packaged in a plastic leaded chip carrier;
a ninth memory chip for storing error detection and correction information associated with the eight data memory chips, said ninth memory chip having a data input and output, a control input and an address input interconnected with those of the eight memory chips, and a control input to provide writing in or reading out of the ninth memory chip at times other than when said bytes of digital information are written into or read out of the eight data memory chips to thereby facilitate said error detection and correction operation;
an epoxy-glass printed circuit board substrate having a length and width adequate for mounting thereon only in a single row said nine memory chips and for interconnecting the control inputs and the address inputs of the memory chips so that bytes of digital information may be input to or output from the memory chips one at a time; the substrate including thirty terminals for providing access to the data inputs and outputs, control inputs, and address inputs of the nine memory chips to enable reading and writing of bytes of digital information into and out of the eight memory chips and to enable reading and writing of error detection and correction information into and out of the eight memory chips;
support means for supporting the memory module at an angle with respect to the printed circuit motherboard when the memory module is installed thereon; and
eight decoupling capacitors, mounted on said substrate and connected between the nine memory chips, for suppressing transient voltage spikes between said memory chips.
(Emphasis added).

The '513 patent contains Claims 1 and 2, which read as follows:

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(Cite as: 993 F.2d 858, *862) —

1. A memory module for installation on a printed circuit motherboard comprising
nine data memory chips for storing digital data, each having a data input and output, control input, and an address input, and each being packaged in a plastic leaded chip carrier, wherein said ninth memory chip is for storing detection and correction information associated with the eight data memory chips,
an epoxy-glass printed circuit board substrate having a length and width adequate for mounting thereon only in a single row said nine memory chips and for interconnecting the control inputs and the address inputs of the memory chips so that bytes of digital information may be input to or output from the memory chips, the substrate including thirty terminals for providing access to the data inputs and outputs, control inputs, and address inputs of the nine memory chips and to enable reading and writing of information into and out of the nine

chips, *support means for supporting the memory module at an angle with respect to a motherboard* and decoupling capacitors mounted on said substrate and coupled to the memory chips for suppressing transient voltages.

2. The module of claim 1 wherein all nine memory chips are interconnected such that data is input to or output from the ninth memory chips when data is input to or output from the other eight memory chips. (Emphasis added).

Toshiba and NEC manufacture several different types of memory modules, including (1) classic nine-chip modules, which have eight data chips and one error detection chip arranged in a single row on a printed circuit board substrate; (2) 3-pack modules, which have three chips arranged in a single row, two half-bytes, which read and store four bits of information each, and a parity chip; and (3) lateral modules, which have nine chips arranged in more than a single row. Of these modules, some are leaded, i.e., electrical leads extend from the module substrate and electrically connect the module to a printed circuit motherboard, and some are leadless, i.e., an edge of the module is designed to mate with a socket attached to a printed circuit motherboard. The jury found, *inter alia*, that the classic modules literally infringed claim 1 of the '513 patent and infringed claim 1 of the '605 patent and claim 2 of the '513 patent under the doctrine of equivalents; the 3-pack modules (all leadless) infringed claim 1 of both patents under the doctrine of equivalents; and the lateral modules infringed claim 1 of both patents under the doctrine of equivalents. [FN6]

FN6. Toshiba and NEC also manufacture Multi-9 modules, having multiple combinations of nine data bits, which were found not to infringe.

Wang also accused NEC and Toshiba of infringing U.S. Patent 4,850,892, entitled "Connecting Apparatus for Electrically Connecting Memory Modules to a Printed Circuit Board." Molex Inc., a manufacturer of SIMM sockets, intervened as a defendant to challenge the accusation of infringement. On Molex's motion for summary judgment, the district court held the '892 patent invalid for violation of the on-sale bar under 35 U.S.C. § 102(b).

The jury determined two reasonable royalty rates, one 4.0%, assuming hypothetical royalty negotiations to have occurred in April 1987, the date when the '605 patent issued, and the other 2.75%, assuming hypothetical royalty negotiations to have occurred in January 1990, the date Wang gave notice of infringement. The court adopted January 1990 as the date when hypothetical royalty negotiations occurred, making the royalty rate 2.75%. The parties stipulated to the amount of infringing sales, excluding sales covered by a licensing agreement between Wang and IBM, as being \$31,106,509 by NEC and \$88,121,819 by Toshiba. The court awarded double damages to Wang for NEC's willful infringement. Based on a 2.75% royalty rate, Wang was awarded \$855,429 to be paid by NEC and \$2,423,350 to be paid by Toshiba, plus prejudgment interest of 8.0% per annum from October 1, 1990 to August 23, 1991, the date of entry of judgment, plus post-judgment interest at the statutory rate. The court also issued a permanent injunction against both Toshiba and NEC. [FN7]

FN7. This court denied NEC and Toshiba's emergency motion for a stay of the injunction order. *Wang Lab., Inc. v. Toshiba Corp.*, Nos. 92- 1006, -1008 (Fed.Cir. Oct. 8, 1991).

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— (Cite as: 993 F.2d 858, *863) —

Toshiba and NEC jointly moved for JNOV on the issues of best mode, written description, obviousness, and infringement, all of which were denied. NEC moved for JNOV on the issues of willfulness, which was denied, and enhanced damages, which was granted. Wang moved to amend the judgment as to the date of the hypothetical negotiations, to increase the enhanced damages, and for attorney fees, all of which were denied. Toshiba and NEC now appeal from the district court's judgment denying JNOV on the issues of obviousness, failure to meet the written description requirement, and infringement. Wang cross-appeals the court's failure to amend the judgment as to the reasonable royalty rate.

DISCUSSION

I. Standard of Review from Denial of JNOV on Infringement and Validity

[1] On appeal of a judgment entered on a verdict after denial of a motion for JNOV, Toshiba and NEC must show

(1) that reasonable persons could not in light of [] evidence [before them] have found the facts necessary to support the jury's verdict; or (2) that the facts properly found cannot in law support that verdict.

Railroad Dynamics, Inc. v. A. Stucki Co., 727 F.2d 1506, 1513, 220 USPQ 929, 936 (Fed.Cir.), cert. denied, 469 U.S. 871, 105 S.Ct. 220, 83 L.Ed.2d 150 (1984). Fact findings reviewed under the substantial evidence standard require affirmance unless appellants show that no reasonable juror could have reached such a result. *Id.* In reviewing the evidence from a denial of JNOV, we must

(1) consider all the evidence, (2) in a light most favorable to the non-mover [,] (3) drawing reasonable inferences favorable to the non-mover[,], (4) without determining credibility of witnesses, and (5) without substituting [our] choice for that of the jury between conflicting elements in the evidence.

Dana Corp. v. IPC Ltd. Partnership, 860 F.2d 415, 417, 8 USPQ2d 1692, 1694-95 (Fed.Cir.1988) (citations omitted), cert. denied, 490 U.S. 1067, 109 S.Ct. 2068, 104 L.Ed.2d 633 (1989).

II. Obviousness

Toshiba and NEC argue that the claims in suit are invalid for obviousness under 35 U.S.C. § 103 (1988). [FN8] Specifically, they state that the claimed subject matter would have been obvious in view of U.S. Patent 4,281,392 assigned to Allen-Bradley Company, sales of Allen-Bradley's X9 SIMMs, and Texas Instruments 1982 MOS Memory Data Book. The appellants further assert that the district court erroneously read limitations into the claims, viz., use of the memory modules in a "personal computer"; attributes of greater storage capacity and less cost for the memory modules compared with those in the prior art; and possession of exactly 30 terminals. While we agree that the claims do not contain these limitations, we do not find this to be determinative on the question of nonobviousness. There is substantial evidence that certain of the prior art was not analogous, and hence the validity of the claims can be upheld for that reason.

FN8. Section 103 states that

[a] patent may not be obtained ... if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains....

[2] Nonobviousness is a legal conclusion, having factual underpinnings, including the scope and content of the prior art. Graham v. John Deere Co., 383 U.S. 1, 17, 86 S.Ct. 684, 693, 15 L.Ed.2d 545, 148 USPQ 459, 467 (1966). "When the Graham factual underpinnings have been genuinely disputed, as in this case, we presume that the jury resolved them in favor of the verdict winner." Jurgens v. McKasy, 927 F.2d 1552, 1558, 18 USPQ2d 1031, 1036 (Fed.Cir.) (citing Perkin-Elmer Corp. v. Computervision Corp., 732 F.2d 888, 893, 221 USPQ 669, 674 (Fed.Cir.), cert. denied, 469 U.S. 857, 105 S.Ct. 187, 83 L.Ed.2d 120 (1984)), cert. denied, --- U.S. ----, 112 S.Ct. 281, 116 L.Ed.2d 232 (1991); see also Newell Cos. v. Kenney Mfg. Co., 864 F.2d 757, 765, 9 USPQ2d 1417, 1423 (Fed.Cir.1988) ("Judges must accept the factual findings, presumed from a favorable jury *864

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verdict, which are supported under the substantial evidence/reasonable juror standard."), cert. denied, 493 U.S. 814, 110 S.Ct. 62, 107 L.Ed.2d 30 (1989).

[3] Appellants assert that Allen-Bradley's '392 patent and its commercial counterpart, the X9 SIMM, are analogous to the claimed subject matter, and accordingly that they are effective to render the claims in suit invalid. However, because of the adequate jury instruction concerning analogous art, we will presume that the Allen-Bradley art was found to be non-analogous to the claimed subject matter. The question then is whether that finding is supported by substantial evidence. We conclude that there was substantial evidence.

[4] Analogous art is that which is relevant to a consideration of obviousness under section 103. See In re Sovish, 769 F.2d 738, 741, 226 USPQ 771, 773 (Fed.Cir.1985). "Whether something legally within the prior art is 'analogous' is a fact question...." Panduit Corp. v. Dennison Mfg. Co., 810 F.2d 1561, 1568 n. 9, 1 USPQ2d 1593, 1597 n. 9 (Fed.Cir.), cert. denied, 481 U.S. 1052, 107 S.Ct. 2187, 95 L.Ed.2d 843 (1987). Two criteria are relevant in determining whether prior art is analogous: (1) whether the art is from the same field of endeavor, regardless of

the problem addressed, and (2) if the art is not within the same field of endeavor, whether it is still reasonably pertinent to the particular problem to be solved. *In re Clay*, 966 F.2d 656, 658-59, 23 USPQ2d 1058, 1060 (Fed.Cir.1992) (citations omitted).

The '392 patent is entitled "Memory Circuit for Programmable Machines"; it discloses a SIMM containing nine memory chips, eight for storing data and one for error detection, mounted in a single row. In the late 1970's, Allen-Bradley manufactured and sold the X9 SIMM for use in its 9-bit programmable controller. This product consisted of nine memory chips encapsulated in ceramic dual in-line packages (ceramic DIPs) mounted on an epoxy-glass printed circuit board substrate.

The Allen-Bradley art is not in the same field of endeavor as the claimed subject matter merely because it relates to memories. It involves memory circuits in which modules of varying sizes may be added or replaced; in contrast, the subject patents teach compact modular memories. Thus, based on the evidence of record, the jury could reasonably have found that the first criterion of the analogous art test has not been met and that the prior art and the claimed subject matter are not in the same field of endeavor.



[5] Even though the Allen-Bradley art is not within the relevant field of endeavor, it may still be analogous if it is reasonably pertinent to the problem the inventor attempted to solve. *Id.* at 659, 23 USPQ2d at 1060-61 (citation omitted). "A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commanded itself to an inventor's attention in considering his problem." *Id.* at 659, 23 USPQ2d at 1061. However, given the jury's ultimate conclusion, we presume that the jury decided that the Allen-Bradley art was not reasonably pertinent. The question then is whether that conclusion is supported by substantial evidence.

Dr. Jeffrey Frey, Wang's technical expert, testified that the Allen-Bradley technology, including the SIMM described in the patent and the X9, was not pertinent to the field of personal computers for which Wang's SIMMs were designed. Although Wang's patents do not mention the term "personal computer," Dr. Frey stated that "[t]he entire context of the patent[s]--in the application of the memories, units of nine, dynamic memories--indicates they're meant for use in personal computers." Dr. Frey further testified that the Allen-Bradley module was developed for use in a controller of large industrial machinery and could not be used in a personal computer. He also stated that the Allen-Bradley patent teaches the use of Static Random-Access-Memories (SRAMs) or Read-Only-Memories (ROMs) and does not suggest the use of Dynamic Random-Access-Memories (DRAMs) as taught by Wang. As Dr. Frey stated, DRAMs are primarily used in personal computers (PCs), while SRAMs, which are larger and more expensive, are not used in PCs.

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Wang's SIMMs were designed to provide compact computer memory with minimum size, low cost, easy repairability, and easy expandability. See '605 patent, col. 2, lines 61-64 ("By using the small D-RAMs and small capacitors, module 30 may have physical dimensions [on] the order of three-quarter inch by three inches while providing large memory capacity."). In contrast, the Allen-Bradley patent relates to a memory circuit for a larger, more costly industrial controller. SRAMs were used by Allen-Bradley because of their intended industrial environment. According to Dr. Frey, size was not a consideration in the Allen-Bradley work. Thus, there is substantial evidence in the record to support a finding that the Allen-Bradley prior art is not reasonably pertinent and is not analogous.

Toshiba and NEC also argue that Wang stipulated that the Allen-Bradley art is analogous. We disagree. At trial, the parties stipulated that the Texas Instruments 1982 MOS Memory Data Book, the '392 patent, and Allen-Bradley's X9 SIMM were prior art to the '605 and '513 patents, but were not before the examiner during prosecution. When the court asked if "[t]hese are the stipulated prior art references[?]," and referred to the Allen-Bradley patent and X9 SIMM among other art, Wang did not stipulate that this art was analogous. Wang acknowledged only that it was prior art, not analogous prior art.

The Allen-Bradley patent and X9 SIMM, not being analogous prior art, thus could not have rendered the claimed subject matter obvious. See *Jurgens*, 927 F.2d at 1559, 18 USPQ2d at 1036. Since Toshiba and NEC rely principally on the Allen-Bradley art and only point to the Texas Instruments reference in combination with Allen-Bradley, appellants have failed to show that the claimed subject matter would have been obvious to a person having ordinary skill in the art at the time Wang's inventions were made. [FN9]

FN9. Even if the Allen-Bradley art were analogous, there was substantial evidence before the jury of significant differences (e.g., substrate size, type of memory chip (SRAM v. DRAM), number of terminals, chip packaging, etc.) between what the Allen-Bradley art teaches and the claimed invention. As to the chip packaging, the testimony would support a jury finding that there was no suggestion or incentive to make the necessary combination of Allen-Bradley's ceramic DIP module with the disclosed Texas Instruments plastic leaded chip carrier at the time of the claimed invention. In addition, there was ample evidence presented to the jury as to the commercial success of the claimed invention. With these assumed jury-found factual underpinnings, its determination of nonobviousness must be affirmed as a

matter of law.

III. Written Description

[KC] [KC]

[6] [7] NEC [FN10] argues that the '605 and '513 patents are invalid for failure to comply with the written description requirement of 35 U.S.C. § 112, first paragraph, which states that

FN10, Toshiba does not raise this issue on appeal.

[t]he specification shall contain a *written description of the invention*, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art ...

35 U.S.C. § 112 (1988) (emphasis added). The standard for determining whether the written description requirement has been met has been stated as follows:

Although [the applicant] does not have to describe exactly the subject matter claimed, ... the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed.... The test for sufficiency of support in a parent application is whether the disclosure of the application relied upon reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter.

Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 1563, 19 USPQ2d 1111, 1116 (Fed.Cir.1991) (citations and quotations omitted). Whether the written description requirement has been met is a question of fact. Ralston Purina Co. v. Far-Mar-Co. Inc., 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed.Cir.1985). Thus, we must determine whether substantial evidence supports the verdict that the written description requirement was met.

According to NEC, the recitation of "support means for supporting the memory module *866

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at an angle with respect to the printed circuit motherboard" was not supported by the original Clayton application, and therefore the claims in both patents are invalid. NEC notes that "support means" was not recited in the original claims, but was added by amendment. It alleges that the specification describes the leads of the memory modules as having only an electrical function, not a mechanical, support function.

[KC]

[8] A patent specification is directed to one of ordinary skill in the art. In re Hayes Microcomputer Prods., Inc. Patent Litigation, 982 F.2d 1527, 1533, 25 USPQ2d 1241, 1245 (Fed.Cir.1992). It is also clear that "drawings alone may provide a 'written description' of an invention as required by § 112." Vas-Cath, 935 F.2d at 1565, 19 USPQ2d at 1118. Dr. Frey testified that Figure 2 "show[s] terminals as leads, which are means of supporting the module." Additionally, Dr. Frey stated, when discussing whether leadless SIMMs are disclosed in the patents, that a person of ordinary skill in the art would know that a leadless SIMM includes a row of terminals "to mount and support that module." He went on to state that "it's the edge of the card and the terminals that support the module." The inventor, Mr. Clayton, also testified that on leaded SIMMs, the leads themselves are the support means, and that on leadless SIMMs, the bottom row of terminals constitutes the support means. Thus, there is substantial evidence in the record to support the conclusion that the support means element is adequately described in the specification by the disclosure of both leads and the terminal edge of the modules. NEC has not shown that the district court's denial of JNOV on the issue of failure to meet the written description requirement was incorrect.

IV. Infringement

A. Lateral and 3-Pack Memory Modules

Toshiba and NEC both appeal that part of the judgment finding infringement under the doctrine of equivalents by the sale of their lateral and 3-pack memory modules. Toshiba argues that prosecution history estoppel bars application of the doctrine. Specifically, Toshiba argues that the 3-pack modules have three memory chips rather than nine, and the lateral modules do not have memory chips mounted only in a single row. They assert that both of these claim limitations were added to overcome rejections based on prior art. Accordingly, Toshiba argues, Wang is now estopped from claim scope given up during prosecution.

[KC]

[9] Although Toshiba asserts that prosecution history estoppel applies to both its lateral and its 3-pack memory modules, NEC only raises estoppel with respect to its 3-pack modules and argues that its lateral modules do not infringe Wang's claims because they are leadless. Normally an issue not raised by an appellant in its initial brief is waived. However, "[t]his practice is ... not governed by a rigid rule but may as a matter of discretion not be adhered to where circumstances indicate that it would result in basically unfair procedure." Becton Dickinson & Co. v. C.R. Bard, Inc., 922 F.2d 792, 800, 17 USPQ2d 1097, 1103 (Fed.Cir.1990). In this case, we can hardly give one appellant

the benefit of an estoppel without giving it to the other, so we consider the defense of prosecution history estoppel as applicable to both Toshiba and NEC for both the 3-pack and lateral modules. Wang is not prejudiced by this because it was afforded the opportunity at trial and on appeal to address the issue with respect to the lateral modules. See *Singleton v. Wulff*, 428 U.S. 106, 120, 96 S.Ct. 2868, 2877, 49 L.Ed.2d 826 (1976). Moreover, in this case both parties relied on an estoppel defense at trial.

KC

[10] Prosecution history estoppel bars "a patentee from enforcing its claims against otherwise legally equivalent structures if those structures were excluded by claim limitations added in order to avoid prior art." *Mannesmann Demag Corp. v. Engineered Metal Prods. Co.*, 793 F.2d 1279, 1284, 230 USPQ 45, 48 (Fed.Cir.1986) (citations omitted). "In determining whether prosecution history estoppel applies because of a change in claim language during prosecution, the court must consider not only what was changed, but the *reason* for such change." *867

(Cite as: 993 F.2d 858, *867)

Vaupel Textilmaschinen KG v. Meccanica Euro Italia S.P.A., 944 F.2d 870, 882, 20 USPQ2d 1045, 1054 (Fed.Cir.1991) (citing *Sun Studs, Inc. v. ATA Equip. Leasing, Inc.*, 872 F.2d 978, 987, 10 USPQ2d 1338, 1345 (Fed.Cir.1989)). Whether estoppel applies is a question of law. *LaBounty Mfg., Inc. v. United States Int'l Trade Comm'n*, 867 F.2d 1572, 1576, 9 USPQ2d 1995, 1998 (Fed.Cir.1989).

KC

KC

[11] [12] Toshiba asserts that Wang specifically limited the scope of its claims to nine memory chips contained in a single row in order to overcome prior art and that Wang is precluded from recapturing what it gave up during prosecution. "Unmistakable assertions made by the applicant to the Patent and Trademark Office (PTO) in support of patentability, whether or not required to secure allowance of the claim, also may operate to preclude the patentee from asserting equivalency...." *Texas Instruments Inc. v. United States Int'l Trade Comm'n*, 988 F.2d 1165, 1174, 26 USPQ2d 1018, 1025 (Fed.Cir.1993) (citations omitted). "Depending on the nature and purpose of an amendment, it may have a limiting effect within a spectrum ranging from great to small to zero." *Hughes Aircraft Co. v. United States*, 717 F.2d 1351, 1363, 219 USPQ 473, 481 (Fed.Cir.1983). The prosecution history must be examined as a whole in determining whether estoppel applies. *Texas Instruments*, 988 F.2d at 1174, 26 USPQ2d at 1025.

In the first Office Action in Wang's parent application, [FN11] the claims were rejected under 35 U.S.C. § 103 as unpatentable over U.S. Patent 3,972,033 to Cislaghi, who teaches a memory module with multiple rows of nine chips. In Cislaghi the check bit, the ninth chip, is located on a separate module from the other eight bits. In response to the rejection, Wang replaced the filed claims so that they recited a printed circuit board substrate for mounting a plurality of memory chips in a single row. Wang stated:

FN11. Wang argued that the '513 claims were patentable for the same reasons that the '605 patent claim was allowed. Thus, we address the prosecution history of the parent application to determine whether estoppel applies to both patents.

The concept of applicant's invention lies in an improved memory module for installation on a printed circuit memory board. A single row of RAM memory chips, packaged in the plastic leaded chip carriers, is mounted on a printed circuit board (glass-epoxy) substrate....

Cislaghi et al. discloses a memory consisting of two "submodule" printed circuit cards wherein check bits for the first card are contained on the second card and vice versa. Applicant's invention as presently claimed has little in common with the disclosure of Cislaghi.... *Cislaghi* [does not] have memory chips mounted in a single row.... (Emphasis added).

Thus, Wang added claims which recited "mounting said plurality of memory chips thereon in a single row." (Emphasis added). The limitation of mounting chips "in a single row" was a basis for overcoming the Examiner's rejection based on Cislaghi. Unlike the teaching of Cislaghi, Wang asserted that its invention accommodated the size constraints of its memory module, noting "[t]he purpose of applicant's invention is to conserve space on a memory board." The "single row" limitation was clearly made for the purpose of overcoming the prior art.

After a second Office Action, Wang filed a preliminary amendment in a file wrapper continuation application in which it cancelled its previous claims and added a new claim, reciting "an epoxy-glass printed circuit board substrate having a length and width adequate for mounting thereon only in a single row said nine memory chips." (Emphasis added). In the "Remarks" section accompanying the preliminary amendment, Wang stated that "Cislaghi et al. teaches the advantage of locating a parity chip on a different printed circuit board...." Once again, these limitations were added to overcome the Examiner's rejection based on Cislaghi.

Wang argues that the prosecution history does not exclude a substrate having memory chips mounted in two rows,

but that the prior art only restricts the size of the substrate to one no larger than that on which nine DRAMs can be mounted. While a two-row construction may not read on the prior art, Wang limited the scope of its claims to memory chips mounted "only in a single row," and *868

(Cite as: 993 F.2d 858, *868) —

twice argued before the PTO that Cislahi did not have memory chips mounted in a single row. Although Cislahi taught the advantage of locating a parity chip on a separate module, Wang did not limit its claims to a single module. Instead, it chose a single row, which excludes the accused modules of Toshiba and NEC. Wang chose to emphasize the specific dimensions of the printed circuit board taught by the invention and limited itself to exclude any embodiment in which the memory chips are not physically located in a single row. See *Litton Sys., Inc. v. Whirlpool Corp.*, 728 F.2d 1423, 1439, 221 USPQ 97, 107 (Fed.Cir.1984) ("A patent attorney is often faced with choices during a patent prosecution.... A patent attorney should not be able, however, to choose one course of action within the PTO with the anticipation that, if later checked, he or she can always choose an alternate course of prosecution in a trial before a federal judge."). Thus, the court erred in denying JNOV; prosecution history estoppel should have been applied to reach the conclusion that the accused lateral memory modules were surrendered during prosecution and therefore do not infringe under the doctrine of equivalents.

Likewise, Wang is also estopped from now arguing that the 3-pack memory modules having less than nine chips can infringe its claims. In the second Office Action, independent claim 4 was rejected under 35 U.S.C. § 103 as unpatentable over a publication by Electronic Designs Inc. (EDI) in view of an article by Lowe. The Examiner stated that the EDI publication showed all the elements of the recited claims except the use of PLCCs and that this technique was shown in Lowe. The EDI publication disclosed a memory module having eight chips and decoupling capacitors in which the module was leaded.

In response, Wang replaced its claims which recited "a plurality of data memory chips" with a new claim reciting "eight data memory chips" and "a ninth memory chip for storing error detection and correction information." In the "Remarks" section of its amendment, Wang argued that the EDI publication described "a single in-line memory module which consists of *eight* ceramic chips.... Applicant claims a single in-line memory module comprising *nine* memory chips (eight for data, one for parity)...." (Emphasis added). Wang also argued that "Cislahi et al. is opposite to the teaching of the present invention, which claims ... a *ninth* memory chip...." (Emphasis added). Wang now argues that the prosecution history does not exclude use of three memory chips which function equivalently to nine memory chips. However, Wang limited the scope of its claims to nine chips. During prosecution, Wang distinguished the EDI publication, which taught the use of eight chips, by adding a claim reciting exactly nine chips. Wang is thus precluded from obtaining the benefit of the doctrine of equivalents for 3-pack memory modules. The court accordingly erred in denying JNOV as to that issue.

We therefore reverse that part of the court's judgment finding infringement by equivalence as applied to the lateral and 3-pack memory modules. Since the same estoppel exists with respect to both the '605 and '513 patents, our ruling applies to both patents.

B. Classic, Leadless Memory Modules



[13] NEC also appeals the denial of JNOV respecting the jury's verdict that NEC's leadless memory modules infringe the patents in suit. [FN12] NEC argues generally that none of its leadless modules infringes literally or under the doctrine of equivalents. NEC specifically states that the claims require a "support means" to hold the module at an angle to the motherboard and that the jury misconstrued the claims in finding that NEC's leadless modules infringe.

FN12. Toshiba does not appeal the judgment on this basis.

In response, Wang states that the sufficiency of the evidence underlying the district court's denial of JNOV on this issue is unreviewable on appeal since NEC failed to move for directed verdict on this ground. [FN13] NEC *869

(Cite as: 993 F.2d 858, *869) —

responds that it did move for summary judgment. We agree with Wang. Although it is true that the standard for summary judgment is virtually the same as that for a directed verdict, viz., that "there can be but one reasonable conclusion as to the verdict," *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 250, 106 S.Ct. 2505, 2511, 91 L.Ed.2d 202 (1986) (citation omitted), this does not mean that a motion for summary judgment is a substitute for a motion for directed verdict. Rule 50(b) of the Federal Rules of Civil Procedure requires a motion for a directed verdict as a prerequisite to a motion for JNOV. A motion for summary judgment before trial is not a substitute for a motion for directed verdict at the close of all the evidence.

FN13. Under amended Rule 50, Fed.R.Civ.P. 50 now refers to a directed verdict as a judgment as a

matter of law. We use the former terminology here.

NEC also asserts that on an issue of claim construction we need not review the sufficiency of the evidence, but can decide as a matter of law whether a leadless memory module can satisfy the support means element of the claims. We disagree. What is involved here are factual questions, not questions of law. As discussed earlier, the leads on the leaded SIMMs are in fact disclosed as support means in the specification. Whether leadless memory modules infringe the claims in issue is also a question of fact. See *Palumbo v. Don-Joy Co.*, 762 F.2d 969, 975, 226 USPQ 5, 8 (Fed.Cir.1985) (citing *D.M.I., Inc. v. Deere & Co.*, 755 F.2d 1570, 1575, 225 USPQ 236, 239 (Fed.Cir.1985)). Since NEC did not raise this factual issue in a timely manner, we are precluded from reviewing the sufficiency of the evidence supporting the jury's conclusion. This result also applies to both patents asserted and to arguments of literal infringement and the doctrine of equivalents.

V. Damages

[14] The district court awarded damages to Wang based on a stipulated total of infringing sales and a reasonable royalty rate of 2.75%, assuming hypothetical royalty negotiations to have occurred in January 1990, the date Wang gave notice to Toshiba and NEC that their products infringed Wang's patents, rather than in April 1987, when the '605 patent issued. The district court stated that January 1990 is chosen because plaintiff is not entitled to any royalty damages prior to that date and because it is the date on which the parties actually would have engaged in negotiations over a reasonable royalty, had both sides been willing to do so. Hence, selection of this date best approximates the royalty that would have resulted had the defendants chosen to seek a patent license rather than to continue unlicensed production and risk being found to have infringed the patents. Nor is there any solid policy reason supporting selection of the earlier date, the date on which the patents issued and infringement of the invention technically began, but for which plaintiffs are barred by 35 U.S.C. § 287 from seeking damages.

Slip op. at 3.

Wang cross-appeals the district court's selection of the January 1990 date as the date when hypothetical negotiations were presumed to have occurred. Wang argues that negotiations should have been hypothesized at the start of infringement, i.e., when both a patent had issued and accused products were sold. We agree.

[15] [16] In reviewing the district court's award, we must determine if the court abused its discretion in its methodology for determining a reasonable royalty rate. *SmithKline Diagnostics, Inc. v. Helena Lab. Corp.*, 926 F.2d 1161, 1164, 17 USPQ2d 1922, 1925 (Fed.Cir.1991). An abuse of discretion occurs when a court bases its determination "on clearly erroneous factual findings, legal error, or a manifest error of judgment." *Datascope Corp. v. SMEC, Inc.*, 879 F.2d 820, 823-24, 11 USPQ2d 1321, 1323 (Fed.Cir.1989), cert. denied, 493 U.S. 1024, 110 S.Ct. 729, 107 L.Ed.2d 747 (1990) (citation omitted). We conclude that the district court committed legal error in choosing January 1990 as the date when hypothetical negotiations began and therefore that it abused its discretion by denying Wang's motion to *870

(Cite as: 993 F.2d 858, *870) —

amend the judgment as to the reasonable royalty rate.

Under 35 U.S.C. § 284 (1988),

the court shall award the claimant damages adequate to compensate for the infringement but in no event less than a reasonable royalty for the use made of the invention by the infringer....

[17] [18] When actual damages cannot be adequately proved, a reasonable royalty may be employed. *Fromson v. Western Litho Plate & Supply Co.*, 853 F.2d 1568, 1574, 7 USPQ2d 1606, 1612 (Fed.Cir.1988). "A reasonable royalty is the amount that 'a person, desiring to manufacture [, use, or] sell a patented article, as a business proposition, would be willing to pay as a royalty and yet be able to make [, use, or] sell the patented article, in the market, at a reasonable profit.' " *Trans-World Mfg. Corp. v. Al Nyman & Sons, Inc.*, 750 F.2d 1552, 1568, 224 USPQ 259, 269 (Fed.Cir.1984) (alterations in original; citations omitted). When an established royalty does not exist, a court may determine a reasonable royalty based on "hypothetical negotiations between willing licensor and willing licensee." *Fromson*, 853 F.2d at 1574, 7 USPQ2d at 1612. "The key element in setting a reasonable royalty ... is the necessity for return to the date when the infringement began." *Hanson v. Alpine Valley Ski Area, Inc.*, 718 F.2d 1075, 1079, 219 USPQ 679, 682 (Fed.Cir.1983) (quoting *Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1158, 197 USPQ 726, 731 (6th Cir.1978)); see also *Fromson*, 853 F.2d at 1575, 7 USPQ2d at 1613 (hypothetical royalty negotiations methodology "speaks of negotiations as of the time infringement began").

[19] In choosing the January 1990 date, the district court failed to follow our precedent. It is not illogical to hypothesize a negotiation at the time of notice. After all, an accused infringer may not know of the patents until notice is given. Nonetheless, this case is governed by the rule in *Fromson*, in which hypothetical negotiations were determined to have occurred when the infringement began, which was the date the patent issued, even though, under 35 U.S.C. § 286, the infringer was only liable for damages for the six years prior to the filing of the infringement action. In this case, infringing products were being sold on the date of issuance of the '605 patent. Therefore, under *Fromson*, hypothetical royalty negotiations should have been considered to have occurred on the patent issuance date. It is true that limitations may apply to the period for which damages may be recovered. As in the present case, failure to mark patented goods is a limitation on recovery of damages, in the absence of notice. 35 U.S.C. § 287 (1988). However, the court confused limitation on damages due to lack of notice with determination of the time when damages first began to accrue, and it is the latter which is controlling in a hypothetical royalty determination. Thus, the district court abused its discretion by denying Wang's motion to amend the judgment as to the reasonable royalty rate.

CONCLUSION

We reverse the district court's judgment denying NEC's and Toshiba's joint motion for JNOV on the issue of infringement by NEC's and Toshiba's sale of lateral and 3-pack memory modules under the doctrine of equivalents. We reverse the court's judgment awarding damages at a 2.75% royalty rate, and we remand for a determination of damages at a 4.0% royalty rate. We affirm the judgment in all other respects.

COSTS

Each party is to bear its own costs.

AFFIRMED-IN-PART, REVERSED-IN-PART, AND REMANDED-IN-PART.

C.A.Fed. (Va.), 1993.

Wang Laboratories, Inc. v. Toshiba Corp.

993 F.2d 858, 26 U.S.P.Q.2d 1767

Briefs and Other Related Documents [\(Back to top\)](#)

- [1992 WL 12013738](#) (Appellate Brief) Reply Brief for Plaintiff/Cross-Appellant Wang Laboratories, Inc. (Apr. 13, 1992)[Original Image of this Document \(PDF\)](#)
- [1992 WL 12013737](#) (Appellate Brief) Reply Brief for Defendants-Appellants Toshiba Corporation; Toshiba America Electronic Components, Inc.; Toshiba America Information Systems, Inc. (Mar. 30, 1992)[Original Image of this Document \(PDF\)](#)
- [1992 WL 12013735](#) (Appellate Brief) Brief for Defendants-Appellants Toshiba Corporation; Toshiba America Electronic Components, Inc.; Toshiba America Information Systems, Inc. (Jan. 07, 1992)[Original Image of this Document with Appendix \(PDF\)](#)
- [1992 WL 12013736](#) (Appellate Brief) Brief for Appellants NEC Corporation, NEC Electronics Inc. and NEC Technologies, Inc. (Jan. 07, 1992)[Original Image of this Document \(PDF\)](#)

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[West Reporter Image \(PDF\)](#)

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West Reporter Image (PDF)

(Cite as: 993 F.2d 858)

993 F.2d 858, 26 U.S.P.Q.2d 1767

Briefs and Other Related Documents

United States Court of Appeals,
Federal Circuit.

WANG LABORATORIES, INC., Plaintiff/Cross-Appellant,
v.

TOSHIBA CORPORATION; Toshiba America Electronic Components, Inc.; Toshiba
America Information Systems, Inc., Defendants-Appellants,
and

NEC Corporation; NEC Electronics Inc. and NEC Technologies, Inc., Defendants-
Appellants,
and

Molex Incorporated, Defendant.

Nos. 92-1006, 92-1008 and 92-1025.

May 10, 1993.

Rehearing Denied; Suggestion for Rehearing In Banc Declined June 28, 1993.

Manufacturer of computer memory modules brought patent infringement action against two competitors. The United States District Court for the Eastern District of Virginia, Thomas Selby Ellis, III, J., entered judgment for patentee and awarded reasonable royalty as damages. Competitors appealed issues of validity and infringement, and patentee cross-appealed to amend judgment as to damages. The Court of Appeals, Lourie, Circuit Judge, held that: (1) competitors failed to show that claimed subject matter would have been obvious to person having ordinary skill in art at time inventions were made; (2) substantial evidence supported verdict that written description requirement for patents was met; (3) prosecution history estoppel barred patentee from enforcing its claims to infringement under doctrine of equivalents as applied to lateral and three-packed memory modules; and (4) district court abused its discretion in determining reasonable royalty rate from date of notice, rather than from date patent was issued. Affirmed in part, reversed in part, and remanded in part.

West Headnotes**[1] KeyCite Notes**

☞ **170B Federal Courts**

☞ **170BVIII Courts of Appeals**

☞ **170BVIII(K) Scope, Standards, and Extent**

☞ **170BVIII(K)5 Questions of Fact, Verdicts and Findings**

☞ **170Bk846 k. Substantial Evidence. Most Cited Cases**

Fact-findings reviewed under substantial evidence standard require affirmance unless appellants show that no reasonable juror could have reached result.

**[2] KeyCite Notes**

☞ **291 Patents**

☞ **291XII Infringement**

☞ **291XII(C) Suits in Equity**

☞ **291k314 Hearing**

☞ **291k314(5) k. Questions of Law or Fact. Most Cited Cases**

Nonobviousness of patent claim is legal conclusion, having factual underpinnings, including scope and content of

prior art.



[3] KeyCite Notes

↳ 291 Patents

↳ 291XII Infringement

↳ 291XII(C) Suits in Equity

↳ 291k314 Hearing

↳ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

Fact that earlier patent involved memory circuits in which modules of varying sizes may be added or replaced and that subject patents involved compact modular memories provided evidence from which jury could reasonably have found that prior art was not from same field of endeavor under analogous art test. 35 U.S.C.A. § 103.



[4] KeyCite Notes

↳ 291 Patents

↳ 291III Patentability

↳ 291III(A) Invention; Obviousness

↳ 291k16 Invention and Obviousness in General

↳ 291k16(2) k. Prior Art in General. Most Cited Cases

Criteria relevant in determining whether prior art is analogous in considering whether patent claims are invalid for obviousness are whether art is from same field of endeavor, regardless of problem addressed, and if art is not within same field of endeavor, whether it is still reasonably pertinent to particular problem to be solved. 35 U.S.C.A. § 103.



[5] KeyCite Notes

↳ 291 Patents

↳ 291XII Infringement

↳ 291XII(C) Suits in Equity

↳ 291k312 Evidence

↳ 291k312(3) Weight and Sufficiency

↳ 291k312(6) k. Particular Matters, Sufficiency as To. Most Cited Cases

Fact that prior art related to memory circuit for larger, more costly industrial controller than compact computer memory provided substantial evidence to support finding that prior art was not reasonably pertinent to field of personal computers for which single in-line memory modules were designed, and, not being analogous prior art, could not have rendered claimed subject matter obvious to person with ordinary skill in art at time inventions were made. 35 U.S.C.A. § 103.



[6] KeyCite Notes

↳ 291 Patents

↳ 291XII Infringement

↳ 291XII(C) Suits in Equity

↳ 291k312 Evidence

↳ 291k312(3) Weight and Sufficiency

↳ 291k312(6) k. Particular Matters, Sufficiency as To. Most Cited Cases

Drawings showing terminals as leads, supporting memory modules, and testimony by inventor that leads on single in-line memory modules provided support means, and evidence that bottom row of terminals were support means on lead less single in-line memory modules provided substantial evidence to support verdict that written description requirement for patent claim was met, though support means were not recited in original application.

[7] KeyCite Notes



↳ 291 Patents

↳ 291XII Infringement

↳ 291XII(C) Suits in Equity

↳ 291k314 Hearing

↳ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

Whether written description requirement of patent claim has been met is question of fact. 35 U.S.C.A. § 112.

[8] KeyCite Notes



↳ 291 Patents

↳ 291IV Applications and Proceedings Thereon

↳ 291k99 k. Description of Invention in Specification. Most Cited Cases

Patent specification is directed to one of ordinary skill in the art. 35 U.S.C.A. § 112.

[9] KeyCite Notes



↳ 170B Federal Courts

↳ 170BVIII Courts of Appeals

↳ 170BVIII(H) Briefs

↳ 170Bk712 k. Briefs in General. Most Cited Cases

Normally, issue not raised by appellant in its initial brief is waived.

[10] KeyCite Notes



↳ 291 Patents

↳ 291IX Construction and Operation of Letters Patent

↳ 291IX(B) Limitation of Claims

↳ 291k168 Proceedings in Patent Office in General

↳ 291k168(2) Rejection and Amendment of Claims

↳ 291k168(2.1) k. In General. Most Cited Cases

Prosecution history estoppel bars patentee from enforcing its claims against otherwise legally equivalent structures if those structures were excluded by claim limitations added in order to avoid prior art.

[11] KeyCite Notes



↳ 291 Patents

↳ 291IX Construction and Operation of Letters Patent

↳ 291IX(B) Limitation of Claims

↳ 291k168 Proceedings in Patent Office in General

↳ 291k168(2) Rejection and Amendment of Claims

↳ 291k168(2.1) k. In General. Most Cited Cases

Prosecution history estoppel barred judgment finding patent infringement under doctrine of the equivalents by sale of allegedly infringing lateral and three-pack memory modules, where patentee specifically limited scope of its claims to nine memory chips contained in single row in order to overcome prior art.



[12] KeyCite Notes

291 Patents

- 291IX Construction and Operation of Letters Patent
- 291IX(B) Limitation of Claims
 - 291k168 Proceedings in Patent Office in General
 - 291k168(2) Rejection and Amendment of Claims
 - 291k168(2.1) k. In General. Most Cited Cases

Prosecution history must be examined as a whole in determining whether prosecution history estoppel would apply to bar patentee from enforcing its claims against otherwise legally equivalent structures.



[13] KeyCite Notes

291 Patents

- 291XII Infringement
- 291XII(C) Suits in Equity
- 291k324 Appeal
 - 291k324.2 k. Decisions Reviewable. Most Cited Cases

Sufficiency of evidence underlying district court's denial of JNOV on jury's verdict that leadless memory modules infringed patents was unreviewable on appeal, where allegedly infringing manufacturer failed to move for directed verdict; motion for summary judgment before trial was not substitute for motion for directed verdict at close of evidence. Fed.Rules Civ.Proc.Rules 50, 50(b), 28 U.S.C.A.



[14] KeyCite Notes

291 Patents

- 291XII Infringement
- 291XII(C) Suits in Equity
- 291k319 Damages
 - 291k319(1) k. In General. Most Cited Cases

District court abused its discretion in determining damages for patent infringement from date patentee gave notice to manufacturers of infringing products, rather than from date patent was issued, where infringing products were being sold on date patent was issued.



[15] KeyCite Notes

291 Patents

- 291XII Infringement
- 291XII(C) Suits in Equity
- 291k324 Appeal
 - 291k324.54 k. Presumptions and Discretion of Lower Court. Most Cited Cases

In reviewing district court's award of damages for patent infringement, Court of Appeals must determine if district court abused its discretion in its methodology for determining reasonable royalty rate.



[16] KeyCite Notes

170B Federal Courts

- 170BVIII Courts of Appeals
- 170BVIII(K) Scope, Standards, and Extent

↳ 170B VIII(K)4 Discretion of Lower Court
↳ 170Bk812 k. Abuse of Discretion. Most Cited Cases

Abuse of discretion occurs when court bases its determination on clearly erroneous factual findings, legal error, or manifest error of judgment.



[17] KeyCite Notes

↳ 291 Patents
↳ 291XII Infringement
↳ 291XII(C) Suits in Equity
↳ 291k318 Profits
↳ 291k318(1) k. In General. Most Cited Cases

When actual damages cannot be adequately proved for patent infringement, reasonable royalty may be employed.



[18] KeyCite Notes

↳ 291 Patents
↳ 291XII Infringement
↳ 291XII(C) Suits in Equity
↳ 291k318 Profits
↳ 291k318(1) k. In General. Most Cited Cases

When established royalty for sale of patented article does not exist, court may determine reasonable royalty based on hypothetical negotiations between willing licensor and willing licensee.



[19] KeyCite Notes

↳ 291 Patents
↳ 291XI Regulation of Dealings in Patent Rights and Patented Articles
↳ 291k222 k. Marking Patented Articles. Most Cited Cases

Failure to mark patent and goods is limitation on recovery of damages, in absence of notice. 35 U.S.C.A. § 287.



KeyCite Notes

↳ 291 Patents
↳ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents
↳ 291k328 Patents Enumerated
↳ 291k328(2) k. Original Utility. Most Cited Cases

3,972,033, 4,281,392. Cited as prior art.



KeyCite Notes

↳ 291 Patents
↳ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents
↳ 291k328 Patents Enumerated
↳ 291k328(2) k. Original Utility. Most Cited Cases

4,656,605, 4,727,513. Infringed and valid.

KeyCite Notes291 Patents291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents291k328 Patents Enumerated291k328(2) k. Original Utility. Most Cited Cases

4,281,392. Cited.

***860**

(Cite as: 993 F.2d 858, *860)

Thomas J. Scott, Howrey & Simon, Washington, DC, argued, for plaintiff/cross-appellant. With him on the brief, were Robert F. Ruyak, Sheila R. Schreiber and Diane B. Heller. Also on the brief, were Edward A. Grayson, Michael H. Shanahan and Paul W. Sandman, Wang Laboratories, Inc., Lowell, MA.

Edward F. McKie, Banner, Birch, McKie & Beckett, Washington, DC, argued, for defendants-appellants, Toshiba Corp. With him on the brief, were Dale H. Hoscheit, Joseph M. Skerpon, Richard J. Moura and Pamela I. Banner. Howard L. Bernstein, Sughrue, Mion, Zinn, MacPeak & Seas, Washington, DC, argued, for defendants-appellants, NEC Corp. With him on the brief, were J. Frank Osha, L. Peter Bernstein and Brett S. Sylvester.

Before ARCHER, LOURIE, and CLEVENGER, Circuit Judges.

LOURIE, Circuit Judge.

This is a patent infringement suit involving two patents on memory modules. It comes to us as a consolidated appeal and cross-appeal from the August 23, 1991 judgment, 1991 WL 333696, and the October 23, 1991 amended judgment of the United States District Court for the Eastern District of Virginia, Civil No. 90-1477-A. On August 8, 1991, a jury returned a verdict in favor of Wang Laboratories, Inc., finding U.S. Patents 4,656,605 and 4,727,513 infringed by Toshiba Corporation, Toshiba America Electronic Components, Inc., and Toshiba America Information Systems, Inc. (collectively Toshiba) and NEC Corporation, NEC Electronics Inc., and NEC Technologies, Inc. (collectively NEC), and not invalid. The jury found that NEC had willfully infringed the patents in suit, while Toshiba's infringement was not willful. On August 14, 1991, the jury determined that Wang was entitled to a reasonable royalty as compensation for the infringement and determined alternative reasonable royalty rates. On August 23, 1991, the district court entered judgment in accordance with the jury verdicts, ruled that the patents were not invalid and were infringed, and awarded a reasonable royalty as damages.

Toshiba and NEC filed post-trial motions for judgment notwithstanding the verdict (JNOV), [FN1] which the district court subsequently denied. [FN2] Wang moved to amend the judgment as to damages; this motion was also denied. Toshiba and NEC now appeal from the district court's judgment denying JNOV on the issues of validity and infringement. Wang cross-appeals the district ***861**

(Cite as: 993 F.2d 858, *861)

court's failure to amend the judgment as to the royalty rate. We affirm-in-part, reverse-in-part, and remand-in-part.

FN1. The case was heard and decided prior to December 1, 1991, the effective date of the amendment to Fed.R.Civ.P. 50(b), which now refers

to JNOV as judgment as a matter of law. We will use the former terminology in this opinion.

FN2. However, NEC moved for an order denying enhanced damages, and this was granted. Because Wang does not appeal this issue, NEC does not appeal the finding of willfulness.

BACKGROUND

The '605 and '513 patents, both entitled "Single In-Line Memory Module," were issued in the name of James E. Clayton and assigned to Wang. The '605 patent issued on April 7, 1987, and the '513 patent on February 23, 1988 from a continuation of the application that led to the '605 patent. [FN3]

FN3. Because of a terminal disclaimer, both patents will expire on April 7, 2004.

The patents relate to single in-line memory modules (SIMMs) having eight data memory chips capable of storing 8-bit binary words or bytes. [FN4] Additionally, the memory modules include a ninth chip, which functions as a check or parity bit for error detection. [FN5] The nine memory chips, which are packaged in plastic leaded chip carriers (PLCCs), are mounted on a single epoxy-glass printed circuit board substrate. Decoupling capacitors for suppressing voltage spikes are also mounted on the memory module substrate. Preferably, access terminals are arrayed across the bottom of the device for data input and output, data address and memory control, and device power. The '605 patent claims require that the ninth chip be interconnected with the other eight, while the '513 patent claims do not require this interconnection so that the parity chip can be written to or read from independently of the eight data chips.

FN4. In digital systems such as computers, information is stored in memory chips as *binary digits (bits)*. Each memory chip contains thousands of memory cells, each storing a bit. An eight-bit binary word is known as a byte. Memory chips can be mounted on a substrate to form a memory module. Conventionally, a memory module for a byte contains eight memory chips.

FN5. A parity bit is commonly used for error detection in a stored byte. A bit contains either a logical "1" or "0." The parity bit signifies whether the sum of the bits in a byte is even or odd. An error may be detected by checking the odd or even count in a byte against the parity bit associated with that byte.

The '605 patent contains one claim, which reads as follows:

A memory module for installation on a printed circuit motherboard comprising:
eight data memory chips for storing digital data, each having a data input and output, a control input, and an address input, and each being packaged in a plastic leaded chip carrier;
a ninth memory chip for storing error detection and correction information associated with the eight data memory chips, said ninth memory chip having a data input and output, a control input and an address input interconnected with those of the eight memory chips, and a control input to provide writing in or reading out of the ninth memory chip at times other than when said bytes of digital information are written into or read out of the eight data memory chips to thereby facilitate said error detection and correction operation;
an epoxy-glass printed circuit board substrate having a length and width adequate for mounting thereon only in a single row said nine memory chips and for interconnecting the control inputs and the address inputs of the memory chips so that bytes of digital information may be input to or output from the memory chips one at a time; the substrate including thirty terminals for providing access to the data inputs and outputs, control inputs, and address inputs of the nine memory chips to enable reading and writing of bytes of digital information into and out of the eight memory chips and to enable reading and writing of error detection and correction information into and out of the eight memory chips;
support means for supporting the memory module at an angle with respect to the printed circuit motherboard when the memory module is installed thereon; and
eight decoupling capacitors, mounted on said substrate and connected between the nine memory chips, for suppressing transient voltage spikes between said memory chips.
(Emphasis added).

The '513 patent contains Claims 1 and 2, which read as follows:

***862**

(Cite as: 993 F.2d 858, *862) —

1. A memory module for installation on a printed circuit motherboard comprising
nine data memory chips for storing digital data, each having a data input and output, control input, and an address input, and each being packaged in a plastic leaded chip carrier, wherein said ninth memory chip is for storing detection and correction information associated with the eight data memory chips,
an epoxy-glass printed circuit board substrate having a length and width adequate for mounting thereon only in a single row said nine memory chips and for interconnecting the control inputs and the address inputs of the memory chips so that bytes of digital information may be input to or output from the memory chips, the substrate including thirty terminals for providing access to the data inputs and outputs, control inputs, and address inputs of the nine memory chips and to enable reading and writing of information into and out of the nine

chips, *support means for supporting the memory module at an angle with respect to a motherboard* and decoupling capacitors mounted on said substrate and coupled to the memory chips for suppressing transient voltages.

2. The module of claim 1 wherein all nine memory chips are interconnected such that data is input to or output from the ninth memory chips when data is input to or output from the other eight memory chips. (Emphasis added).

Toshiba and NEC manufacture several different types of memory modules, including (1) classic nine-chip modules, which have eight data chips and one error detection chip arranged in a single row on a printed circuit board substrate; (2) 3-pack modules, which have three chips arranged in a single row, two half-bytes, which read and store four bits of information each, and a parity chip; and (3) lateral modules, which have nine chips arranged in more than a single row. Of these modules, some are leaded, i.e., electrical leads extend from the module substrate and electrically connect the module to a printed circuit motherboard, and some are leadless, i.e., an edge of the module is designed to mate with a socket attached to a printed circuit motherboard. The jury found, *inter alia*, that the classic modules literally infringed claim 1 of the '513 patent and infringed claim 1 of the '605 patent and claim 2 of the '513 patent under the doctrine of equivalents; the 3-pack modules (all leadless) infringed claim 1 of both patents under the doctrine of equivalents; and the lateral modules infringed claim 1 of both patents under the doctrine of equivalents. [FN6]

FN6. Toshiba and NEC also manufacture Multi-9 modules, having multiple combinations of nine data bits, which were found not to infringe.

Wang also accused NEC and Toshiba of infringing U.S. Patent 4,850,892, entitled "Connecting Apparatus for Electrically Connecting Memory Modules to a Printed Circuit Board." Molex Inc., a manufacturer of SIMM sockets, intervened as a defendant to challenge the accusation of infringement. On Molex's motion for summary judgment, the district court held the '892 patent invalid for violation of the on-sale bar under 35 U.S.C. § 102(b).

The jury determined two reasonable royalty rates, one 4.0%, assuming hypothetical royalty negotiations to have occurred in April 1987, the date when the '605 patent issued, and the other 2.75%, assuming hypothetical royalty negotiations to have occurred in January 1990, the date Wang gave notice of infringement. The court adopted January 1990 as the date when hypothetical royalty negotiations occurred, making the royalty rate 2.75%. The parties stipulated to the amount of infringing sales, excluding sales covered by a licensing agreement between Wang and IBM, as being \$31,106,509 by NEC and \$88,121,819 by Toshiba. The court awarded double damages to Wang for NEC's willful infringement. Based on a 2.75% royalty rate, Wang was awarded \$855,429 to be paid by NEC and \$2,423,350 to be paid by Toshiba, plus prejudgment interest of 8.0% per annum from October 1, 1990 to August 23, 1991, the date of entry of judgment, plus post-judgment interest at the statutory rate. The court also issued a permanent injunction against both Toshiba and NEC. [FN7]

FN7. This court denied NEC and Toshiba's emergency motion for a stay of the injunction order. *Wang Lab., Inc. v. Toshiba Corp.*, Nos. 92- 1006, -1008 (Fed.Cir. Oct. 8, 1991).

***863**

—(Cite as: 993 F.2d 858, *863)—

Toshiba and NEC jointly moved for JNOV on the issues of best mode, written description, obviousness, and infringement, all of which were denied. NEC moved for JNOV on the issues of willfulness, which was denied, and enhanced damages, which was granted. Wang moved to amend the judgment as to the date of the hypothetical negotiations, to increase the enhanced damages, and for attorney fees, all of which were denied. Toshiba and NEC now appeal from the district court's judgment denying JNOV on the issues of obviousness, failure to meet the written description requirement, and infringement. Wang cross-appeals the court's failure to amend the judgment as to the reasonable royalty rate.

DISCUSSION

I. Standard of Review from Denial of JNOV on Infringement and Validity

[1] KC On appeal of a judgment entered on a verdict after denial of a motion for JNOV, Toshiba and NEC must show

(1) that reasonable persons could not in light of [] evidence [before them] have found the facts necessary to support the jury's verdict; or (2) that the facts properly found cannot in law support that verdict.

Railroad Dynamics, Inc. v. A. Stucki Co., 727 F.2d 1506, 1513, 220 USPQ 929, 936 (Fed.Cir.), cert. denied, 469 U.S. 871, 105 S.Ct. 220, 83 L.Ed.2d 150 (1984). Fact findings reviewed under the substantial evidence standard require affirmance unless appellants show that no reasonable juror could have reached such a result. *Id.* In reviewing the evidence from a denial of JNOV, we must

(1) consider all the evidence, (2) in a light most favorable to the non-mover [,] (3) drawing reasonable inferences favorable to the non-mover[,], (4) without determining credibility of witnesses, and (5) without substituting [our] choice for that of the jury between conflicting elements in the evidence.

Dana Corp. v. IPC Ltd. Partnership, 860 F.2d 415, 417, 8 USPQ2d 1692, 1694-95 (Fed.Cir.1988) (citations omitted), cert. denied, 490 U.S. 1067, 109 S.Ct. 2068, 104 L.Ed.2d 633 (1989).

II. Obviousness

Toshiba and NEC argue that the claims in suit are invalid for obviousness under 35 U.S.C. § 103 (1988). [FN8] Specifically, they state that the claimed subject matter would have been obvious in view of U.S. Patent 4,281,392 assigned to Allen-Bradley Company, sales of Allen-Bradley's X9 SIMMs, and Texas Instruments 1982 MOS Memory Data Book. The appellants further assert that the district court erroneously read limitations into the claims, viz., use of the memory modules in a "personal computer"; attributes of greater storage capacity and less cost for the memory modules compared with those in the prior art; and possession of exactly 30 terminals. While we agree that the claims do not contain these limitations, we do not find this to be determinative on the question of nonobviousness. There is substantial evidence that certain of the prior art was not analogous, and hence the validity of the claims can be upheld for that reason.

FN8. Section 103 states that

[a] patent may not be obtained ... if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains....

[2] KC Nonobviousness is a legal conclusion, having factual underpinnings, including the scope and content of the prior art. Graham v. John Deere Co., 383 U.S. 1, 17, 86 S.Ct. 684, 693, 15 L.Ed.2d 545, 148 USPQ 459, 467 (1966). "When the Graham factual underpinnings have been genuinely disputed, as in this case, we presume that the jury resolved them in favor of the verdict winner." Jurgens v. McKasy, 927 F.2d 1552, 1558, 18 USPQ2d 1031, 1036 (Fed.Cir.) (citing Perkin-Elmer Corp. v. Computervision Corp., 732 F.2d 888, 893, 221 USPQ 669, 674 (Fed.Cir.), cert. denied, 469 U.S. 857, 105 S.Ct. 187, 83 L.Ed.2d 120 (1984)), cert. denied, --- U.S. ----, 112 S.Ct. 281, 116 L.Ed.2d 232 (1991); see also Newell Cos. v. Kenney Mfg. Co., 864 F.2d 757, 765, 9 USPQ2d 1417, 1423 (Fed.Cir.1988) ("Judges must accept the factual findings, presumed from a favorable jury *864

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verdict, which are supported under the substantial evidence/reasonable juror standard."), cert. denied, 493 U.S. 814, 110 S.Ct. 62, 107 L.Ed.2d 30 (1989).

[3] KC Appellants assert that Allen-Bradley's 392 patent and its commercial counterpart, the X9 SIMM, are analogous to the claimed subject matter, and accordingly that they are effective to render the claims in suit invalid. However, because of the adequate jury instruction concerning analogous art, we will presume that the Allen-Bradley art was found to be non-analogous to the claimed subject matter. The question then is whether that finding is supported by substantial evidence. We conclude that there was substantial evidence.

[4] KC Analogous art is that which is relevant to a consideration of obviousness under section 103. See In re Sovish, 769 F.2d 738, 741, 226 USPQ 771, 773 (Fed.Cir.1985). "Whether something legally within the prior art is 'analogous' is a fact question...." Panduit Corp. v. Dennison Mfg. Co., 810 F.2d 1561, 1568 n. 9, 1 USPQ2d 1593, 1597 n. 9 (Fed.Cir.), cert. denied, 481 U.S. 1052, 107 S.Ct. 2187, 95 L.Ed.2d 843 (1987). Two criteria are relevant in determining whether prior art is analogous: (1) whether the art is from the same field of endeavor, regardless of

the problem addressed, and (2) if the art is not within the same field of endeavor, whether it is still reasonably pertinent to the particular problem to be solved. *In re Clay*, 966 F.2d 656, 658-59, 23 USPQ2d 1058, 1060 (Fed.Cir.1992) (citations omitted).

The '392 patent is entitled "Memory Circuit for Programmable Machines"; it discloses a SIMM containing nine memory chips, eight for storing data and one for error detection, mounted in a single row. In the late 1970's, Allen-Bradley manufactured and sold the X9 SIMM for use in its 9-bit programmable controller. This product consisted of nine memory chips encapsulated in ceramic dual in-line packages (ceramic DIPs) mounted on an epoxy-glass printed circuit board substrate.

The Allen-Bradley art is not in the same field of endeavor as the claimed subject matter merely because it relates to memories. It involves memory circuits in which modules of varying sizes may be added or replaced; in contrast, the subject patents teach compact modular memories. Thus, based on the evidence of record, the jury could reasonably have found that the first criterion of the analogous art test has not been met and that the prior art and the claimed subject matter are not in the same field of endeavor.



[5] Even though the Allen-Bradley art is not within the relevant field of endeavor, it may still be analogous if it is reasonably pertinent to the problem the inventor attempted to solve. *Id.* at 659, 23 USPQ2d at 1060-61 (citation omitted). "A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commanded itself to an inventor's attention in considering his problem." *Id.* at 659, 23 USPQ2d at 1061. However, given the jury's ultimate conclusion, we presume that the jury decided that the Allen-Bradley art was not reasonably pertinent. The question then is whether that conclusion is supported by substantial evidence.

Dr. Jeffrey Frey, Wang's technical expert, testified that the Allen-Bradley technology, including the SIMM described in the patent and the X9, was not pertinent to the field of personal computers for which Wang's SIMMs were designed. Although Wang's patents do not mention the term "personal computer," Dr. Frey stated that "[t]he entire context of the patent[s]--in the application of the memories, units of nine, dynamic memories--indicates they're meant for use in personal computers." Dr. Frey further testified that the Allen-Bradley module was developed for use in a controller of large industrial machinery and could not be used in a personal computer. He also stated that the Allen-Bradley patent teaches the use of Static Random-Access-Memories (SRAMs) or Read-Only-Memories (ROMs) and does not suggest the use of Dynamic Random-Access-Memories (DRAMs) as taught by Wang. As Dr. Frey stated, DRAMs are primarily used in personal computers (PCs), while SRAMs, which are larger and more expensive, are not used in PCs.

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Wang's SIMMs were designed to provide compact computer memory with minimum size, low cost, easy repairability, and easy expandability. See '605 patent, col. 2, lines 61-64 ("By using the small D-RAMs and small capacitors, module 30 may have physical dimensions [on] the order of three-quarter inch by three inches while providing large memory capacity."). In contrast, the Allen-Bradley patent relates to a memory circuit for a larger, more costly industrial controller. SRAMs were used by Allen-Bradley because of their intended industrial environment. According to Dr. Frey, size was not a consideration in the Allen-Bradley work. Thus, there is substantial evidence in the record to support a finding that the Allen-Bradley prior art is not reasonably pertinent and is not analogous.

Toshiba and NEC also argue that Wang stipulated that the Allen-Bradley art is analogous. We disagree. At trial, the parties stipulated that the Texas Instruments 1982 MOS Memory Data Book, the '392 patent, and Allen-Bradley's X9 SIMM were prior art to the '605 and '513 patents, but were not before the examiner during prosecution. When the court asked if "[t]hese are the stipulated prior art references[?]," and referred to the Allen-Bradley patent and X9 SIMM among other art, Wang did not stipulate that this art was analogous. Wang acknowledged only that it was prior art, not analogous prior art.

The Allen-Bradley patent and X9 SIMM, not being analogous prior art, thus could not have rendered the claimed subject matter obvious. See *Jurgens*, 927 F.2d at 1559, 18 USPQ2d at 1036. Since Toshiba and NEC rely principally on the Allen-Bradley art and only point to the Texas Instruments reference in combination with Allen-Bradley, appellants have failed to show that the claimed subject matter would have been obvious to a person having ordinary skill in the art at the time Wang's inventions were made. [FN9]

FN9. Even if the Allen-Bradley art were analogous, there was substantial evidence before the jury of significant differences (e.g., substrate size, type of memory chip (SRAM v. DRAM), number of terminals, chip packaging, etc.) between what the Allen-Bradley art teaches and the claimed invention. As to the chip packaging, the testimony would support a jury finding that there was no suggestion or incentive to make the necessary combination of Allen-Bradley's ceramic DIP module with the disclosed Texas Instruments plastic leaded chip carrier at the time of the claimed invention. In addition, there was ample evidence presented to the jury as to the commercial success of the claimed invention. With these assumed jury-found factual underpinnings, its determination of nonobviousness must be affirmed as a

matter of law.

III. Written Description

[6] [7] NEC [FN10] argues that the '605 and '513 patents are invalid for failure to comply with the written description requirement of 35 U.S.C. § 112, first paragraph, which states that

FN10. Toshiba does not raise this issue on appeal.

[t]he specification shall contain a *written description of the invention*, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art ...

35 U.S.C. § 112 (1988) (emphasis added). The standard for determining whether the written description requirement has been met has been stated as follows:

Although [the applicant] does not have to describe exactly the subject matter claimed, ... the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed.... The test for sufficiency of support in a parent application is whether the disclosure of the application relied upon reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter.

Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 1563, 19 USPQ2d 1111, 1116 (Fed.Cir.1991) (citations and quotations omitted). Whether the written description requirement has been met is a question of fact. Ralston Purina Co. v. Far-Mar-Co. Inc., 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed.Cir.1985). Thus, we must determine whether substantial evidence supports the verdict that the written description requirement was met.

According to NEC, the recitation of "support means for supporting the memory module *866

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at an angle with respect to the printed circuit motherboard" was not supported by the original Clayton application, and therefore the claims in both patents are invalid. NEC notes that "support means" was not recited in the original claims, but was added by amendment. It alleges that the specification describes the leads of the memory modules as having only an electrical function, not a mechanical, support function.

[8] A patent specification is directed to one of ordinary skill in the art. In re Hayes Microcomputer Prods., Inc. Patent Litigation, 982 F.2d 1527, 1533, 25 USPQ2d 1241, 1245 (Fed.Cir.1992). It is also clear that "drawings alone may provide a 'written description' of an invention as required by § 112." Vas-Cath, 935 F.2d at 1565, 19 USPQ2d at 1118. Dr. Frey testified that Figure 2 "show[s] terminals as leads, which are means of supporting the module." Additionally, Dr. Frey stated, when discussing whether leadless SIMMs are disclosed in the patents, that a person of ordinary skill in the art would know that a leadless SIMM includes a row of terminals "to mount and support that module." He went on to state that "it's the edge of the card and the terminals that support the module." The inventor, Mr. Clayton, also testified that on leaded SIMMs, the leads themselves are the support means, and that on leadless SIMMs, the bottom row of terminals constitutes the support means. Thus, there is substantial evidence in the record to support the conclusion that the support means element is adequately described in the specification by the disclosure of both leads and the terminal edge of the modules. NEC has not shown that the district court's denial of JNOV on the issue of failure to meet the written description requirement was incorrect.

IV. Infringement

A. Lateral and 3-Pack Memory Modules

Toshiba and NEC both appeal that part of the judgment finding infringement under the doctrine of equivalents by the sale of their lateral and 3-pack memory modules. Toshiba argues that prosecution history estoppel bars application of the doctrine. Specifically, Toshiba argues that the 3-pack modules have three memory chips rather than nine, and the lateral modules do not have memory chips mounted only in a single row. They assert that both of these claim limitations were added to overcome rejections based on prior art. Accordingly, Toshiba argues, Wang is now estopped from claim scope given up during prosecution.

[9] Although Toshiba asserts that prosecution history estoppel applies to both its lateral and its 3-pack memory modules, NEC only raises estoppel with respect to its 3-pack modules and argues that its lateral modules do not infringe Wang's claims because they are leadless. Normally an issue not raised by an appellant in its initial brief is waived. However, "[t]his practice is ... not governed by a rigid rule but may as a matter of discretion not be adhered to where circumstances indicate that it would result in basically unfair procedure." Becton Dickinson & Co. v. C.R. Bard, Inc., 922 F.2d 792, 800, 17 USPQ2d 1097, 1103 (Fed.Cir.1990). In this case, we can hardly give one appellant

the benefit of an estoppel without giving it to the other, so we consider the defense of prosecution history estoppel as applicable to both Toshiba and NEC for both the 3-pack and lateral modules. Wang is not prejudiced by this because it was afforded the opportunity at trial and on appeal to address the issue with respect to the lateral modules. See *Singleton v. Wulff*, 428 U.S. 106, 120, 96 S.Ct. 2868, 2877, 49 L.Ed.2d 826 (1976). Moreover, in this case both parties relied on an estoppel defense at trial.

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[10] Prosecution history estoppel bars "a patentee from enforcing its claims against otherwise legally equivalent structures if those structures were excluded by claim limitations added in order to avoid prior art." *Mannesmann Demag Corp. v. Engineered Metal Prods. Co.*, 793 F.2d 1279, 1284, 230 USPQ 45, 48 (Fed.Cir.1986) (citations omitted). "In determining whether prosecution history estoppel applies because of a change in claim language during prosecution, the court must consider not only what was changed, but the *reason* for such change." *867

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Vaupel Textilmaschinen KG v. Meccanica Euro Italia S.P.A., 944 F.2d 870, 882, 20 USPQ2d 1045, 1054 (Fed.Cir.1991) (citing *Sun Studs, Inc. v. ATA Equip. Leasing, Inc.*, 872 F.2d 978, 987, 10 USPQ2d 1338, 1345 (Fed.Cir.1989)). Whether estoppel applies is a question of law. *LaBounty Mfg., Inc. v. United States Int'l Trade Comm'n*, 867 F.2d 1572, 1576, 9 USPQ2d 1995, 1998 (Fed.Cir.1989).

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[11] [12] Toshiba asserts that Wang specifically limited the scope of its claims to nine memory chips contained in a single row in order to overcome prior art and that Wang is precluded from recapturing what it gave up during prosecution. "Unmistakable assertions made by the applicant to the Patent and Trademark Office (PTO) in support of patentability, whether or not required to secure allowance of the claim, also may operate to preclude the patentee from asserting equivalency...." *Texas Instruments Inc. v. United States Int'l Trade Comm'n*, 988 F.2d 1165, 1174, 26 USPQ2d 1018, 1025 (Fed.Cir.1993) (citations omitted). "Depending on the nature and purpose of an amendment, it may have a limiting effect within a spectrum ranging from great to small to zero." *Hughes Aircraft Co. v. United States*, 717 F.2d 1351, 1363, 219 USPQ 473, 481 (Fed.Cir.1983). The prosecution history must be examined as a whole in determining whether estoppel applies. *Texas Instruments*, 988 F.2d at 1174, 26 USPQ2d at 1025.

In the first Office Action in Wang's parent application, [FN11] the claims were rejected under 35 U.S.C. § 103 as unpatentable over U.S. Patent 3,972,033 to Cislaghi, who teaches a memory module with multiple rows of nine chips. In Cislaghi the check bit, the ninth chip, is located on a separate module from the other eight bits. In response to the rejection, Wang replaced the filed claims so that they recited a printed circuit board substrate for mounting a plurality of memory chips in a single row. Wang stated:

FN11. Wang argued that the '513 claims were patentable for the same reasons that the '605 patent claim was allowed. Thus, we address the prosecution history of the parent application to determine whether estoppel applies to both patents.

The concept of applicant's invention lies in an improved memory module for installation on a printed circuit memory board. A single row of RAM memory chips, packaged in the plastic leaded chip carriers, is mounted on a printed circuit board (glass-epoxy) substrate....

Cislaghi et al. discloses a memory consisting of two "submodule" printed circuit cards wherein check bits for the first card are contained on the second card and vice versa. Applicant's invention as presently claimed has little in common with the disclosure of Cislaghi.... *Cislaghi* [does not] have memory chips mounted in a single row.... (Emphasis added).

Thus, Wang added claims which recited "mounting said plurality of memory chips thereon *in a single row*." (Emphasis added). The limitation of mounting chips "in a single row" was a basis for overcoming the Examiner's rejection based on Cislaghi. Unlike the teaching of Cislaghi, Wang asserted that its invention accommodated the size constraints of its memory module, noting "[t]he purpose of applicant's invention is to conserve space on a memory board." The "single row" limitation was clearly made for the purpose of overcoming the prior art.

After a second Office Action, Wang filed a preliminary amendment in a file wrapper continuation application in which it cancelled its previous claims and added a new claim, reciting "an epoxy-glass printed circuit board substrate having a length and width adequate for mounting thereon *only* in a single row said nine memory chips." (Emphasis added). In the "Remarks" section accompanying the preliminary amendment, Wang stated that "Cislaghi et al. teaches the advantage of locating a parity chip on a different printed circuit board...." Once again, these limitations were added to overcome the Examiner's rejection based on Cislaghi.

Wang argues that the prosecution history does not exclude a substrate having memory chips mounted in two rows,

but that the prior art only restricts the size of the substrate to one no larger than that on which nine DRAMs can be mounted. While a two-row construction may not read on the prior art, Wang limited the scope of its claims to memory chips mounted "only in a single row," and *868

(Cite as: 993 F.2d 858, *868) —

twice argued before the PTO that Cislagli did not have memory chips mounted in a single row. Although Cislagli taught the advantage of locating a parity chip on a separate module, Wang did not limit its claims to a single module. Instead, it chose a single row, which excludes the accused modules of Toshiba and NEC. Wang chose to emphasize the specific dimensions of the printed circuit board taught by the invention and limited itself to exclude any embodiment in which the memory chips are not physically located in a single row. See *Litton Sys., Inc. v. Whirlpool Corp.*, 728 F.2d 1423, 1439, 221 USPQ 97, 107 (Fed.Cir.1984) ("A patent attorney is often faced with choices during a patent prosecution.... A patent attorney should not be able, however, to choose one course of action within the PTO with the anticipation that, if later checked, he or she can always choose an alternate course of prosecution in a trial before a federal judge."). Thus, the court erred in denying JNOV; prosecution history estoppel should have been applied to reach the conclusion that the accused lateral memory modules were surrendered during prosecution and therefore do not infringe under the doctrine of equivalents.

Likewise, Wang is also estopped from now arguing that the 3-pack memory modules having less than nine chips can infringe its claims. In the second Office Action, independent claim 4 was rejected under 35 U.S.C. § 103 as unpatentable over a publication by Electronic Designs Inc. (EDI) in view of an article by Lowe. The Examiner stated that the EDI publication showed all the elements of the recited claims except the use of PLCCs and that this technique was shown in Lowe. The EDI publication disclosed a memory module having eight chips and decoupling capacitors in which the module was leaded.

In response, Wang replaced its claims which recited "a plurality of data memory chips" with a new claim reciting "eight data memory chips" and "a ninth memory chip for storing error detection and correction information." In the "Remarks" section of its amendment, Wang argued that the EDI publication described "a single in-line memory module which consists of eight ceramic chips.... Applicant claims a single in-line memory module comprising nine memory chips (eight for data, one for parity)...." (Emphasis added). Wang also argued that "Cislagli et al. is opposite to the teaching of the present invention, which claims ... a ninth memory chip...." (Emphasis added). Wang now argues that the prosecution history does not exclude use of three memory chips which function equivalently to nine memory chips. However, Wang limited the scope of its claims to nine chips. During prosecution, Wang distinguished the EDI publication, which taught the use of eight chips, by adding a claim reciting exactly nine chips. Wang is thus precluded from obtaining the benefit of the doctrine of equivalents for 3-pack memory modules. The court accordingly erred in denying JNOV as to that issue.

We therefore reverse that part of the court's judgment finding infringement by equivalence as applied to the lateral and 3-pack memory modules. Since the same estoppel exists with respect to both the '605 and '513 patents, our ruling applies to both patents.

B. Classic, Leadless Memory Modules



[13] NEC also appeals the denial of JNOV respecting the jury's verdict that NEC's leadless memory modules infringe the patents in suit. [FN12] NEC argues generally that none of its leadless modules infringes literally or under the doctrine of equivalents. NEC specifically states that the claims require a "support means" to hold the module at an angle to the motherboard and that the jury misconstrued the claims in finding that NEC's leadless modules infringe.

FN12. Toshiba does not appeal the judgment on this basis.

In response, Wang states that the sufficiency of the evidence underlying the district court's denial of JNOV on this issue is unreviewable on appeal since NEC failed to move for directed verdict on this ground. [FN13] NEC *869

(Cite as: 993 F.2d 858, *869) —

responds that it did move for summary judgment. We agree with Wang. Although it is true that the standard for summary judgment is virtually the same as that for a directed verdict, viz., that "there can be but one reasonable conclusion as to the verdict," *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 250, 106 S.Ct. 2505, 2511, 91 L.Ed.2d 202 (1986) (citation omitted), this does not mean that a motion for summary judgment is a substitute for a motion for directed verdict. Rule 50(b) of the Federal Rules of Civil Procedure requires a motion for a directed verdict as a prerequisite to a motion for JNOV. A motion for summary judgment before trial is not a substitute for a motion for directed verdict at the close of all the evidence.

FN13. Under amended Rule 50, Fed.R.Civ.P. 50 now refers to a directed verdict as a judgment as a

matter of law. We use the former terminology here.

NEC also asserts that on an issue of claim construction we need not review the sufficiency of the evidence, but can decide as a matter of law whether a leadless memory module can satisfy the support means element of the claims. We disagree. What is involved here are factual questions, not questions of law. As discussed earlier, the leads on the leadless SIMMs are in fact disclosed as support means in the specification. Whether leadless memory modules infringe the claims in issue is also a question of fact. See *Palumbo v. Don-Joy Co.*, 762 F.2d 969, 975, 226 USPQ 5, 8 (Fed.Cir.1985) (citing *D.M.I., Inc. v. Deere & Co.*, 755 F.2d 1570, 1575, 225 USPQ 236, 239 (Fed.Cir.1985)). Since NEC did not raise this factual issue in a timely manner, we are precluded from reviewing the sufficiency of the evidence supporting the jury's conclusion. This result also applies to both patents asserted and to arguments of literal infringement and the doctrine of equivalents.

V. Damages

 [14] The district court awarded damages to Wang based on a stipulated total of infringing sales and a reasonable royalty rate of 2.75%, assuming hypothetical royalty negotiations to have occurred in January 1990, the date Wang gave notice to Toshiba and NEC that their products infringed Wang's patents, rather than in April 1987, when the '605 patent issued. The district court stated that January 1990 is chosen because plaintiff is not entitled to any royalty damages prior to that date and because it is the date on which the parties actually would have engaged in negotiations over a reasonable royalty, had both sides been willing to do so. Hence, selection of this date best approximates the royalty that would have resulted had the defendants chosen to seek a patent license rather than to continue unlicensed production and risk being found to have infringed the patents. Nor is there any solid policy reason supporting selection of the earlier date, the date on which the patents issued and infringement of the invention technically began, but for which plaintiffs are barred by 35 U.S.C. § 287 from seeking damages.

Slip op. at 3.

Wang cross-appeals the district court's selection of the January 1990 date as the date when hypothetical negotiations were presumed to have occurred. Wang argues that negotiations should have been hypothesized at the start of infringement, i.e., when both a patent had issued and accused products were sold. We agree.

  [15] [16] In reviewing the district court's award, we must determine if the court abused its discretion in its methodology for determining a reasonable royalty rate. *SmithKline Diagnostics, Inc. v. Helena Lab. Corp.*, 926 F.2d 1161, 1164, 17 USPQ2d 1922, 1925 (Fed.Cir.1991). An abuse of discretion occurs when a court bases its determination "on clearly erroneous factual findings, legal error, or a manifest error of judgment." *Datascope Corp. v. SMEC, Inc.*, 879 F.2d 820, 823-24, 11 USPQ2d 1321, 1323 (Fed.Cir.1989), cert. denied, 493 U.S. 1024, 110 S.Ct. 729, 107 L.Ed.2d 747 (1990) (citation omitted). We conclude that the district court committed legal error in choosing January 1990 as the date when hypothetical negotiations began and therefore that it abused its discretion by denying Wang's motion to *870

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amend the judgment as to the reasonable royalty rate.

Under 35 U.S.C. § 284 (1988),

the court shall award the claimant damages adequate to compensate for the infringement but in no event less than a reasonable royalty for the use made of the invention by the infringer....

  [17] [18] When actual damages cannot be adequately proved, a reasonable royalty may be employed. *Fromson v. Western Litho Plate & Supply Co.*, 853 F.2d 1568, 1574, 7 USPQ2d 1606, 1612 (Fed.Cir.1988). "A reasonable royalty is the amount that 'a person, desiring to manufacture [, use, or] sell a patented article, as a business proposition, would be willing to pay as a royalty and yet be able to make [, use, or] sell the patented article, in the market, at a reasonable profit.' " *Trans-World Mfg. Corp. v. Al Nyman & Sons, Inc.*, 750 F.2d 1552, 1568, 224 USPQ 259, 269 (Fed.Cir.1984) (alterations in original; citations omitted). When an established royalty does not exist, a court may determine a reasonable royalty based on "hypothetical negotiations between willing licensor and willing licensee." *Fromson*, 853 F.2d at 1574, 7 USPQ2d at 1612. "The key element in setting a reasonable royalty ... is the necessity for return to the date when the infringement began." *Hanson v. Alpine Valley Ski Area, Inc.*, 718 F.2d 1075, 1079, 219 USPQ 679, 682 (Fed.Cir.1983) (quoting *Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1158, 197 USPQ 726, 731 (6th Cir.1978)); see also *Fromson*, 853 F.2d at 1575, 7 USPQ2d at 1613 (hypothetical royalty negotiations methodology "speaks of negotiations as of the time infringement began").

[19] In choosing the January 1990 date, the district court failed to follow our precedent. It is not illogical to hypothesize a negotiation at the time of notice. After all, an accused infringer may not know of the patents until notice is given. Nonetheless, this case is governed by the rule in *Fromson*, in which hypothetical negotiations were determined to have occurred when the infringement began, which was the date the patent issued, even though, under 35 U.S.C. § 286, the infringer was only liable for damages for the six years prior to the filing of the infringement action. In this case, infringing products were being sold on the date of issuance of the '605 patent. Therefore, under *Fromson*, hypothetical royalty negotiations should have been considered to have occurred on the patent issuance date. It is true that limitations may apply to the period for which damages may be recovered. As in the present case, failure to mark patented goods is a limitation on recovery of damages, in the absence of notice. 35 U.S.C. § 287 (1988). However, the court confused limitation on damages due to lack of notice with determination of the time when damages first began to accrue, and it is the latter which is controlling in a hypothetical royalty determination. Thus, the district court abused its discretion by denying Wang's motion to amend the judgment as to the reasonable royalty rate.

CONCLUSION

We reverse the district court's judgment denying NEC's and Toshiba's joint motion for JNOV on the issue of infringement by NEC's and Toshiba's sale of lateral and 3-pack memory modules under the doctrine of equivalents. We reverse the court's judgment awarding damages at a 2.75% royalty rate, and we remand for a determination of damages at a 4.0% royalty rate. We affirm the judgment in all other respects.

COSTS

Each party is to bear its own costs.

AFFIRMED-IN-PART, REVERSED-IN-PART, AND REMANDED-IN-PART.

C.A.Fed. (Va.), 1993.

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Briefs and Other Related Documents [\(Back to top\)](#)

- [1992 WL 12013738](#) (Appellate Brief) Reply Brief for Plaintiff/Cross-Appellant Wang Laboratories, Inc. (Apr. 13, 1992) [Original Image of this Document \(PDF\)](#)
- [1992 WL 12013737](#) (Appellate Brief) Reply Brief for Defendants-Appellants Toshiba Corporation; Toshiba America Electronic Components, Inc.; Toshiba America Information Systems, Inc. (Mar. 30, 1992) [Original Image of this Document \(PDF\)](#)
- [1992 WL 12013735](#) (Appellate Brief) Brief for Defendants-Appellants Toshiba Corporation; Toshiba America Electronic Components, Inc.; Toshiba America Information Systems, Inc. (Jan. 07, 1992) [Original Image of this Document with Appendix \(PDF\)](#)
- [1992 WL 12013736](#) (Appellate Brief) Brief for Appellants NEC Corporation, NEC Electronics Inc. and NEC Technologies, Inc. (Jan. 07, 1992) [Original Image of this Document \(PDF\)](#)

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Briefs and Other Related Documents

United States Court of Appeals,
Federal Circuit.

WANG LABORATORIES, INC., Plaintiff/Cross-Appellant,
v.

TOSHIBA CORPORATION; Toshiba America Electronic Components, Inc.; Toshiba America Information Systems, Inc., Defendants-Appellants,
and

NEC Corporation; NEC Electronics Inc. and NEC Technologies, Inc., Defendants-Appellants,
and

Molex Incorporated, Defendant.

Nos. 92-1006, 92-1008 and 92-1025.

May 10, 1993.

Rehearing Denied; Suggestion for Rehearing In Banc Declined June 28, 1993.

Manufacturer of computer memory modules brought patent infringement action against two competitors. The United States District Court for the Eastern District of Virginia, Thomas Selby Ellis, III, J., entered judgment for patentee and awarded reasonable royalty as damages. Competitors appealed issues of validity and infringement, and patentee cross-appealed to amend judgment as to damages. The Court of Appeals, Lourie, Circuit Judge, held that: (1) competitors failed to show that claimed subject matter would have been obvious to person having ordinary skill in art at time inventions were made; (2) substantial evidence supported verdict that written description requirement for patents was met; (3) prosecution history estoppel barred patentee from enforcing its claims to infringement under doctrine of equivalents as applied to lateral and three-packed memory modules; and (4) district court abused its discretion in determining reasonable royalty rate from date of notice, rather than from date patent was issued. Affirmed in part, reversed in part, and remanded in part.

West Headnotes

[1] KeyCite Notes

170B Federal Courts

170BVIII Courts of Appeals

170BVIII(K) Scope, Standards, and Extent

170BVIII(K)5 Questions of Fact, Verdicts and Findings

170Bk846 k. Substantial Evidence. Most Cited Cases

Fact-findings reviewed under substantial evidence standard require affirmance unless appellants show that no reasonable juror could have reached result.

[2] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k314 Hearing

291k314(5) k. Questions of Law or Fact. Most Cited Cases

Nonobviousness of patent claim is legal conclusion, having factual underpinnings, including scope and content of

prior art.



[3] KeyCite Notes

- ◆ 291 Patents
 - ◆ 291XII Infringement
 - ◆ 291XII(C) Suits in Equity
 - ◆ 291k314 Hearing
 - ◆ 291k314(5) k. Questions of Law or Fact. Most Cited Cases

Fact that earlier patent involved memory circuits in which modules of varying sizes may be added or replaced and that subject patents involved compact modular memories provided evidence from which jury could reasonably have found that prior art was not from same field of endeavor under analogous art test. 35 U.S.C.A. § 103.



[4] KeyCite Notes

- ◆ 291 Patents
 - ◆ 291III Patentability
 - ◆ 291II(A) Invention; Obviousness
 - ◆ 291k16 Invention and Obviousness in General
 - ◆ 291k16(2) k. Prior Art in General. Most Cited Cases

Criteria relevant in determining whether prior art is analogous in considering whether patent claims are invalid for obviousness are whether art is from same field of endeavor, regardless of problem addressed, and if art is not within same field of endeavor, whether it is still reasonably pertinent to particular problem to be solved. 35 U.S.C.A. § 103.



[5] KeyCite Notes

- ◆ 291 Patents
 - ◆ 291XII Infringement
 - ◆ 291XII(C) Suits in Equity
 - ◆ 291k312 Evidence
 - ◆ 291k312(3) Weight and Sufficiency
 - ◆ 291k312(6) k. Particular Matters, Sufficiency as To. Most Cited Cases

Fact that prior art related to memory circuit for larger, more costly industrial controller than compact computer memory provided substantial evidence to support finding that prior art was not reasonably pertinent to field of personal computers for which single in-line memory modules were designed, and, not being analogous prior art, could not have rendered claimed subject matter obvious to person with ordinary skill in art at time inventions were made. 35 U.S.C.A. § 103.



[6] KeyCite Notes

- ◆ 291 Patents
 - ◆ 291XII Infringement
 - ◆ 291XII(C) Suits in Equity
 - ◆ 291k312 Evidence
 - ◆ 291k312(3) Weight and Sufficiency
 - ◆ 291k312(6) k. Particular Matters, Sufficiency as To. Most Cited Cases

Drawings showing terminals as leads, supporting memory modules, and testimony by inventor that leads on single in-line memory modules provided support means, and evidence that bottom row of terminals were support means on lead less single in-line memory modules provided substantial evidence to support verdict that written description requirement for patent claim was met, though support means were not recited in original application.



[7] KeyCite Notes

291 Patents

291XII Infringement

291XII(C) Suits in Equity

291k314 Hearing

291k314(5) k. Questions of Law or Fact. Most Cited Cases

Whether written description requirement of patent claim has been met is question of fact. 35 U.S.C.A. § 112.



[8] KeyCite Notes

291 Patents

291IV Applications and Proceedings Thereon

291k99 k. Description of Invention in Specification. Most Cited Cases

Patent specification is directed to one of ordinary skill in the art. 35 U.S.C.A. § 112.



[9] KeyCite Notes

170B Federal Courts

170BVIII Courts of Appeals

170BVIII(H) Briefs

170Bk712 k. Briefs in General. Most Cited Cases

Normally, issue not raised by appellant in its initial brief is waived.



[10] KeyCite Notes

291 Patents

291IX Construction and Operation of Letters Patent

291IX(B) Limitation of Claims

291k168 Proceedings in Patent Office in General

291k168(2) Rejection and Amendment of Claims

291k168(2.1) k. In General. Most Cited Cases

Prosecution history estoppel bars patentee from enforcing its claims against otherwise legally equivalent structures if those structures were excluded by claim limitations added in order to avoid prior art.



[11] KeyCite Notes

291 Patents

291IX Construction and Operation of Letters Patent

291IX(B) Limitation of Claims

291k168 Proceedings in Patent Office in General

291k168(2) Rejection and Amendment of Claims

291k168(2.1) k. In General. Most Cited Cases

Prosecution history estoppel barred judgment finding patent infringement under doctrine of the equivalents by sale of allegedly infringing lateral and three-pack memory modules, where patentee specifically limited scope of its claims to nine memory chips contained in single row in order to overcome prior art.

[12] KeyCite Notes

291 Patents

- 291IX Construction and Operation of Letters Patent
- 291IX(B) Limitation of Claims
- 291k168 Proceedings in Patent Office in General
- 291k168(2) Rejection and Amendment of Claims
- 291k168(2.1) k. In General. Most Cited Cases

Prosecution history must be examined as a whole in determining whether prosecution history estoppel would apply to bar patentee from enforcing its claims against otherwise legally equivalent structures.

[13] KeyCite Notes

291 Patents

- 291XII Infringement
- 291XII(C) Suits in Equity
- 291k324 Appeal
- 291k324.2 k. Decisions Reviewable. Most Cited Cases

Sufficiency of evidence underlying district court's denial of JNOV on jury's verdict that leadless memory modules infringed patents was unreviewable on appeal, where allegedly infringing manufacturer failed to move for directed verdict; motion for summary judgment before trial was not substitute for motion for directed verdict at close of evidence. Fed. Rules Civ. Proc. Rules 50, 50(b), 28 U.S.C.A.

[14] KeyCite Notes

291 Patents

- 291XII Infringement
- 291XII(C) Suits in Equity
- 291k319 Damages
- 291k319(1) k. In General. Most Cited Cases

District court abused its discretion in determining damages for patent infringement from date patentee gave notice to manufacturers of infringing products, rather than from date patent was issued, where infringing products were being sold on date patent was issued.

[15] KeyCite Notes

291 Patents

- 291XII Infringement
- 291XII(C) Suits in Equity
- 291k324 Appeal
- 291k324.54 k. Presumptions and Discretion of Lower Court. Most Cited Cases

In reviewing district court's award of damages for patent infringement, Court of Appeals must determine if district court abused its discretion in its methodology for determining reasonable royalty rate.

[16] KeyCite Notes

170B Federal Courts

- 170BVIII Courts of Appeals
- 170BVIII(K) Scope, Standards, and Extent

↳ 170BVIII(K)4 Discretion of Lower Court
 ↳ 170Bk812 k. Abuse of Discretion. Most Cited Cases

Abuse of discretion occurs when court bases its determination on clearly erroneous factual findings, legal error, or manifest error of judgment.



[17] KeyCite Notes

↳ 291 Patents
 ↳ 291XII Infringement
 ↳ 291XII(C) Suits in Equity
 ↳ 291k318 Profits
 ↳ 291k318(1) k. In General. Most Cited Cases

When actual damages cannot be adequately proved for patent infringement, reasonable royalty may be employed.



[18] KeyCite Notes

↳ 291 Patents
 ↳ 291XII Infringement
 ↳ 291XII(C) Suits in Equity
 ↳ 291k318 Profits
 ↳ 291k318(1) k. In General. Most Cited Cases

When established royalty for sale of patented article does not exist, court may determine reasonable royalty based on hypothetical negotiations between willing licensor and willing licensee.



[19] KeyCite Notes

↳ 291 Patents
 ↳ 291XI Regulation of Dealings in Patent Rights and Patented Articles
 ↳ 291k222 k. Marking Patented Articles. Most Cited Cases

Failure to mark patent and goods is limitation on recovery of damages, in absence of notice. 35 U.S.C.A. § 287.



KeyCite Notes

↳ 291 Patents
 ↳ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents
 ↳ 291k328 Patents Enumerated
 ↳ 291k328(2) k. Original Utility. Most Cited Cases

3,972,033, 4,281,392. Cited as prior art.



KeyCite Notes

↳ 291 Patents
 ↳ 291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents
 ↳ 291k328 Patents Enumerated
 ↳ 291k328(2) k. Original Utility. Most Cited Cases

4,656,605, 4,727,513. Infringed and valid.

KeyCite Notes291 Patents291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents291k328 Patents Enumerated291k328(2) k. Original Utility. Most Cited Cases

4,281,392. Cited.

***860**

(Cite as: 993 F.2d 858, *860)

Thomas J. Scott, Howrey & Simon, Washington, DC, argued, for plaintiff/cross-appellant. With him on the brief, were Robert F. Ruyak, Sheila R. Schreiber and Diane B. Heller. Also on the brief, were Edward A. Grayson, Michael H. Shanahan and Paul W. Sandman, Wang Laboratories, Inc., Lowell, MA. Edward F. McKie, Banner, Birch, McKie & Beckett, Washington, DC, argued, for defendants-appellants, Toshiba Corp. With him on the brief, were Dale H. Hoscheit, Joseph M. Skerpon, Richard J. Moura and Pamela I. Banner. Howard L. Bernstein, Sughrue, Mion, Zinn, MacPeak & Seas, Washington, DC, argued, for defendants-appellants, NEC Corp. With him on the brief, were J. Frank Osha, L. Peter Bernstein and Brett S. Sylvester.

Before ARCHER, LOURIE, and CLEVENGER, Circuit Judges.

LOURIE, Circuit Judge.

This is a patent infringement suit involving two patents on memory modules. It comes to us as a consolidated appeal and cross-appeal from the August 23, 1991 judgment, 1991 WL 333696, and the October 23, 1991 amended judgment of the United States District Court for the Eastern District of Virginia, Civil No. 90-1477-A. On August 8, 1991, a jury returned a verdict in favor of Wang Laboratories, Inc., finding U.S. Patents 4,656,605 and 4,727,513 infringed by Toshiba Corporation, Toshiba America Electronic Components, Inc., and Toshiba America Information Systems, Inc. (collectively Toshiba) and NEC Corporation, NEC Electronics Inc., and NEC Technologies, Inc. (collectively NEC), and not invalid. The jury found that NEC had willfully infringed the patents in suit, while Toshiba's infringement was not willful. On August 14, 1991, the jury determined that Wang was entitled to a reasonable royalty as compensation for the infringement and determined alternative reasonable royalty rates. On August 23, 1991, the district court entered judgment in accordance with the jury verdicts, ruled that the patents were not invalid and were infringed, and awarded a reasonable royalty as damages.

Toshiba and NEC filed post-trial motions for judgment notwithstanding the verdict (JNOV), [FN1] which the district court subsequently denied. [FN2] Wang moved to amend the judgment as to damages; this motion was also denied. Toshiba and NEC now appeal from the district court's judgment denying JNOV on the issues of validity and infringement. Wang cross-appeals the district ***861**

(Cite as: 993 F.2d 858, *861)

court's failure to amend the judgment as to the royalty rate. We affirm-in-part, reverse-in-part, and remand-in-part.

FN1. The case was heard and decided prior to December 1, 1991, the effective date of the amendment to Fed.R.Civ.P. 50(b), which now refers

to JNOV as judgment as a matter of law. We will use the former terminology in this opinion.

FN2. However, NEC moved for an order denying enhanced damages, and this was granted. Because Wang does not appeal this issue, NEC does not appeal the finding of willfulness.

BACKGROUND

The '605 and '513 patents, both entitled "Single In-Line Memory Module," were issued in the name of James E. Clayton and assigned to Wang. The '605 patent issued on April 7, 1987, and the '513 patent on February 23, 1988 from a continuation of the application that led to the '605 patent. [FN3]

FN3. Because of a terminal disclaimer, both patents will expire on April 7, 2004.

The patents relate to single in-line memory modules (SIMMs) having eight data memory chips capable of storing 8-bit binary words or bytes. [FN4] Additionally, the memory modules include a ninth chip, which functions as a check or parity bit for error detection. [FN5] The nine memory chips, which are packaged in plastic leaded chip carriers (PLCCs), are mounted on a single epoxy-glass printed circuit board substrate. Decoupling capacitors for suppressing voltage spikes are also mounted on the memory module substrate. Preferably, access terminals are arrayed across the bottom of the device for data input and output, data address and memory control, and device power. The '605 patent claims require that the ninth chip be interconnected with the other eight, while the '513 patent claims do not require this interconnection so that the parity chip can be written to or read from independently of the eight data chips.

FN4. In digital systems such as computers, information is stored in memory chips as *binary digits* (bits). Each memory chip contains thousands of memory cells, each storing a bit. An eight-bit binary word is known as a byte. Memory chips can be mounted on a substrate to form a memory module. Conventionally, a memory module for a byte contains eight memory chips.

FN5. A parity bit is commonly used for error detection in a stored byte. A bit contains either a logical "1" or "0." The parity bit signifies whether the sum of the bits in a byte is even or odd. An error may be detected by checking the odd or even count in a byte against the parity bit associated with that byte.

The '605 patent contains one claim, which reads as follows:

A memory module for installation on a printed circuit motherboard comprising:
eight data memory chips for storing digital data, each having a data input and output, a control input, and an address input, and each being packaged in a plastic leaded chip carrier;
a ninth memory chip for storing error detection and correction information associated with the eight data memory chips, said ninth memory chip having a data input and output, a control input and an address input interconnected with those of the eight memory chips, and a control input to provide writing in or reading out of the ninth memory chip at times other than when said bytes of digital information are written into or read out of the eight data memory chips to thereby facilitate said error detection and correction operation;
an epoxy-glass printed circuit board substrate having a length and width adequate for mounting thereon only in a single row said nine memory chips and for interconnecting the control inputs and the address inputs of the memory chips so that bytes of digital information may be input to or output from the memory chips one at a time; the substrate including thirty terminals for providing access to the data inputs and outputs, control inputs, and address inputs of the nine memory chips to enable reading and writing of bytes of digital information into and out of the eight memory chips and to enable reading and writing of error detection and correction information into and out of the eight memory chips;
support means for supporting the memory module at an angle with respect to the printed circuit motherboard when the memory module is installed thereon; and
eight decoupling capacitors, mounted on said substrate and connected between the nine memory chips, for suppressing transient voltage spikes between said memory chips.
(Emphasis added).

The '513 patent contains Claims 1 and 2, which read as follows:

***862**

(Cite as: 993 F.2d 858, *862) —

1. A memory module for installation on a printed circuit motherboard comprising
nine data memory chips for storing digital data, each having a data input and output, control input, and an address input, and each being packaged in a plastic leaded chip carrier, wherein said ninth memory chip is for storing detection and correction information associated with the eight data memory chips,
an epoxy-glass printed circuit board substrate having a length and width adequate for mounting thereon only in a single row said nine memory chips and for interconnecting the control inputs and the address inputs of the memory chips so that bytes of digital information may be input to or output from the memory chips, the substrate including thirty terminals for providing access to the data inputs and outputs, control inputs, and address inputs of the nine memory chips and to enable reading and writing of information into and out of the nine

chips, support means for supporting the memory module at an angle with respect to a motherboard and decoupling capacitors mounted on said substrate and coupled to the memory chips for suppressing transient voltages.

2. The module of claim 1 wherein all nine memory chips are interconnected such that data is input to or output from the ninth memory chips when data is input to or output from the other eight memory chips. (Emphasis added).

Toshiba and NEC manufacture several different types of memory modules, including (1) classic nine-chip modules, which have eight data chips and one error detection chip arranged in a single row on a printed circuit board substrate; (2) 3-pack modules, which have three chips arranged in a single row, two half-bytes, which read and store four bits of information each, and a parity chip; and (3) lateral modules, which have nine chips arranged in more than a single row. Of these modules, some are leaded, i.e., electrical leads extend from the module substrate and electrically connect the module to a printed circuit motherboard, and some are leadless, i.e., an edge of the module is designed to mate with a socket attached to a printed circuit motherboard. The jury found, *inter alia*, that the classic modules literally infringed claim 1 of the '513 patent and infringed claim 1 of the '605 patent and claim 2 of the '513 patent under the doctrine of equivalents; the 3-pack modules (all leadless) infringed claim 1 of both patents under the doctrine of equivalents; and the lateral modules infringed claim 1 of both patents under the doctrine of equivalents. [FN6]

FN6. Toshiba and NEC also manufacture Multi-9 modules, having multiple combinations of nine data bits, which were found not to infringe.

Wang also accused NEC and Toshiba of infringing U.S. Patent 4,850,892, entitled "Connecting Apparatus for Electrically Connecting Memory Modules to a Printed Circuit Board." Molex Inc., a manufacturer of SIMM sockets, intervened as a defendant to challenge the accusation of infringement. On Molex's motion for summary judgment, the district court held the '892 patent invalid for violation of the on-sale bar under 35 U.S.C. § 102(b).

The jury determined two reasonable royalty rates, one 4.0%, assuming hypothetical royalty negotiations to have occurred in April 1987, the date when the '605 patent issued, and the other 2.75%, assuming hypothetical royalty negotiations to have occurred in January 1990, the date Wang gave notice of infringement. The court adopted January 1990 as the date when hypothetical royalty negotiations occurred, making the royalty rate 2.75%. The parties stipulated to the amount of infringing sales, excluding sales covered by a licensing agreement between Wang and IBM, as being \$31,106,509 by NEC and \$88,121,819 by Toshiba. The court awarded double damages to Wang for NEC's willful infringement. Based on a 2.75% royalty rate, Wang was awarded \$855,429 to be paid by NEC and \$2,423,350 to be paid by Toshiba, plus prejudgment interest of 8.0% per annum from October 1, 1990 to August 23, 1991, the date of entry of judgment, plus post-judgment interest at the statutory rate. The court also issued a permanent injunction against both Toshiba and NEC. [FN7]

FN7. This court denied NEC and Toshiba's emergency motion for a stay of the injunction order. *Wang Lab., Inc. v. Toshiba Corp.*, Nos. 92- 1006, -1008 (Fed.Cir. Oct. 8, 1991).

***863**

— (Cite as: 993 F.2d 858, *863) —

Toshiba and NEC jointly moved for JNOV on the issues of best mode, written description, obviousness, and infringement, all of which were denied. NEC moved for JNOV on the issues of willfulness, which was denied, and enhanced damages, which was granted. Wang moved to amend the judgment as to the date of the hypothetical negotiations, to increase the enhanced damages, and for attorney fees, all of which were denied. Toshiba and NEC now appeal from the district court's judgment denying JNOV on the issues of obviousness, failure to meet the written description requirement, and infringement. Wang cross-appeals the court's failure to amend the judgment as to the reasonable royalty rate.

DISCUSSION

I. Standard of Review from Denial of JNOV on Infringement and Validity

KC

[1] On appeal of a judgment entered on a verdict after denial of a motion for JNOV, Toshiba and NEC must show

(1) that reasonable persons could not in light of [] evidence [before them] have found the facts necessary to support the jury's verdict; or (2) that the facts properly found cannot in law support that verdict.

Railroad Dynamics, Inc. v. A. Stucki Co., 727 F.2d 1506, 1513, 220 USPQ 929, 936 (Fed.Cir.), cert. denied, 469 U.S. 871, 105 S.Ct. 220, 83 L.Ed.2d 150 (1984). Fact findings reviewed under the substantial evidence standard require affirmance unless appellants show that no reasonable juror could have reached such a result. *Id.* In reviewing the evidence from a denial of JNOV, we must

(1) consider all the evidence, (2) in a light most favorable to the non-mover [,] (3) drawing reasonable inferences favorable to the non-mover[,], (4) without determining credibility of witnesses, and (5) without substituting [our] choice for that of the jury between conflicting elements in the evidence.

Dana Corp. v. IPC Ltd. Partnership, 860 F.2d 415, 417, 8 USPQ2d 1692, 1694-95 (Fed.Cir.1988) (citations omitted), cert. denied, 490 U.S. 1067, 109 S.Ct. 2068, 104 L.Ed.2d 633 (1989).

II. Obviousness

Toshiba and NEC argue that the claims in suit are invalid for obviousness under 35 U.S.C. § 103 (1988). [FN8] Specifically, they state that the claimed subject matter would have been obvious in view of U.S. Patent 4,281,392 assigned to Allen-Bradley Company, sales of Allen-Bradley's X9 SIMMs, and Texas Instruments 1982 MOS Memory Data Book. The appellants further assert that the district court erroneously read limitations into the claims, viz., use of the memory modules in a "personal computer"; attributes of greater storage capacity and less cost for the memory modules compared with those in the prior art; and possession of exactly 30 terminals. While we agree that the claims do not contain these limitations, we do not find this to be determinative on the question of nonobviousness. There is substantial evidence that certain of the prior art was not analogous, and hence the validity of the claims can be upheld for that reason.

FN8. Section 103 states that

[a] patent may not be obtained ... if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains....

KC

[2] Nonobviousness is a legal conclusion, having factual underpinnings, including the scope and content of the prior art. Graham v. John Deere Co., 383 U.S. 1, 17, 86 S.Ct. 684, 693, 15 L.Ed.2d 545, 148 USPQ 459, 467 (1966). "When the Graham factual underpinnings have been genuinely disputed, as in this case, we presume that the jury resolved them in favor of the verdict winner." Jurgens v. McKasy, 927 F.2d 1552, 1558, 18 USPQ2d 1031, 1036 (Fed.Cir.) (citing Perkin-Elmer Corp. v. Computervision Corp., 732 F.2d 888, 893, 221 USPQ 669, 674 (Fed.Cir.), cert. denied, 469 U.S. 857, 105 S.Ct. 187, 83 L.Ed.2d 120 (1984)), cert. denied, --- U.S. ----, 112 S.Ct. 281, 116 L.Ed.2d 232 (1991); see also Newell Cos. v. Kenney Mfg. Co., 864 F.2d 757, 765, 9 USPQ2d 1417, 1423 (Fed.Cir.1988) ("Judges must accept the factual findings, presumed from a favorable jury *864

(Cite as: 993 F.2d 858, *864)

verdict, which are supported under the substantial evidence/reasonable juror standard."), cert. denied, 493 U.S. 814, 110 S.Ct. 62, 107 L.Ed.2d 30 (1989).

KC

[3] Appellants assert that Allen-Bradley's '392 patent and its commercial counterpart, the X9 SIMM, are analogous to the claimed subject matter, and accordingly that they are effective to render the claims in suit invalid. However, because of the adequate jury instruction concerning analogous art, we will presume that the Allen-Bradley art was found to be non-analogous to the claimed subject matter. The question then is whether that finding is supported by substantial evidence. We conclude that there was substantial evidence.

KC

[4] Analogous art is that which is relevant to a consideration of obviousness under section 103. See In re Sovish, 769 F.2d 738, 741, 226 USPQ 771, 773 (Fed.Cir.1985). "Whether something legally within the prior art is 'analogous' is a fact question...." Panduit Corp. v. Dennison Mfg. Co., 810 F.2d 1561, 1568 n. 9, 1 USPQ2d 1593, 1597 n. 9 (Fed.Cir.), cert. denied, 481 U.S. 1052, 107 S.Ct. 2187, 95 L.Ed.2d 843 (1987). Two criteria are relevant in determining whether prior art is analogous: (1) whether the art is from the same field of endeavor, regardless of

the problem addressed, and (2) if the art is not within the same field of endeavor, whether it is still reasonably pertinent to the particular problem to be solved. *In re Clay*, 966 F.2d 656, 658-59, 23 USPQ2d 1058, 1060 (Fed.Cir.1992) (citations omitted).

The '392 patent is entitled "Memory Circuit for Programmable Machines"; it discloses a SIMM containing nine memory chips, eight for storing data and one for error detection, mounted in a single row. In the late 1970's, Allen-Bradley manufactured and sold the X9 SIMM for use in its 9-bit programmable controller. This product consisted of nine memory chips encapsulated in ceramic dual in-line packages (ceramic DIPs) mounted on an epoxy-glass printed circuit board substrate.

The Allen-Bradley art is not in the same field of endeavor as the claimed subject matter merely because it relates to memories. It involves memory circuits in which modules of varying sizes may be added or replaced; in contrast, the subject patents teach compact modular memories. Thus, based on the evidence of record, the jury could reasonably have found that the first criterion of the analogous art test has not been met and that the prior art and the claimed subject matter are not in the same field of endeavor.

[KC]

[5] Even though the Allen-Bradley art is not within the relevant field of endeavor, it may still be analogous if it is reasonably pertinent to the problem the inventor attempted to solve. *Id.* at 659, 23 USPQ2d at 1060-61 (citation omitted). "A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." *Id.* at 659, 23 USPQ2d at 1061. However, given the jury's ultimate conclusion, we presume that the jury decided that the Allen-Bradley art was not reasonably pertinent. The question then is whether that conclusion is supported by substantial evidence.

Dr. Jeffrey Frey, Wang's technical expert, testified that the Allen-Bradley technology, including the SIMM described in the patent and the X9, was not pertinent to the field of personal computers for which Wang's SIMMs were designed. Although Wang's patents do not mention the term "personal computer," Dr. Frey stated that "[t]he entire context of the patent[s]--in the application of the memories, units of nine, dynamic memories--indicates they're meant for use in personal computers." Dr. Frey further testified that the Allen-Bradley module was developed for use in a controller of large industrial machinery and could not be used in a personal computer. He also stated that the Allen-Bradley patent teaches the use of Static Random-Access-Memories (SRAMs) or Read-Only-Memories (ROMs) and does not suggest the use of Dynamic Random-Access-Memories (DRAMs) as taught by Wang. As Dr. Frey stated, DRAMs are primarily used in personal computers (PCs), while SRAMs, which are larger and more expensive, are not used in PCs.

*865

(Cite as: 993 F.2d 858, *865)

Wang's SIMMs were designed to provide compact computer memory with minimum size, low cost, easy repairability, and easy expandability. See '605 patent, col. 2, lines 61-64 ("By using the small D-RAMs and small capacitors, module 30 may have physical dimensions [on] the order of three-quarter inch by three inches while providing large memory capacity."). In contrast, the Allen-Bradley patent relates to a memory circuit for a larger, more costly industrial controller. SRAMs were used by Allen-Bradley because of their intended industrial environment. According to Dr. Frey, size was not a consideration in the Allen-Bradley work. Thus, there is substantial evidence in the record to support a finding that the Allen-Bradley prior art is not reasonably pertinent and is not analogous.

Toshiba and NEC also argue that Wang stipulated that the Allen-Bradley art is analogous. We disagree. At trial, the parties stipulated that the Texas Instruments 1982 MOS Memory Data Book, the '392 patent, and Allen-Bradley's X9 SIMM were prior art to the '605 and '513 patents, but were not before the examiner during prosecution. When the court asked if "[t]hese are the stipulated prior art references[?]," and referred to the Allen-Bradley patent and X9 SIMM among other art, Wang did not stipulate that this art was analogous. Wang acknowledged only that it was prior art, not analogous prior art.

The Allen-Bradley patent and X9 SIMM, not being analogous prior art, thus could not have rendered the claimed subject matter obvious. See *Jurgens*, 927 F.2d at 1559, 18 USPQ2d at 1036. Since Toshiba and NEC rely principally on the Allen-Bradley art and only point to the Texas Instruments reference in combination with Allen-Bradley, appellants have failed to show that the claimed subject matter would have been obvious to a person having ordinary skill in the art at the time Wang's inventions were made. [FN9]

FN9. Even if the Allen-Bradley art were analogous, there was substantial evidence before the jury of significant differences (e.g., substrate size, type of memory chip (SRAM v. DRAM), number of terminals, chip packaging, etc.) between what the Allen-Bradley art teaches and the claimed invention. As to the chip packaging, the testimony would support a jury finding that there was no suggestion or incentive to make the necessary combination of Allen-Bradley's ceramic DIP module with the disclosed Texas Instruments plastic leaded chip carrier at the time of the claimed invention. In addition, there was ample evidence presented to the jury as to the commercial success of the claimed invention. With these assumed jury-found factual underpinnings, its determination of nonobviousness must be affirmed as a

matter of law.

III. Written Description

[6] [7] NEC [FN10] argues that the '605 and '513 patents are invalid for failure to comply with the written description requirement of 35 U.S.C. § 112, first paragraph, which states that

FN10. Toshiba does not raise this issue on appeal.

[t]he specification shall contain a *written description of the invention*, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art ...

35 U.S.C. § 112 (1988) (emphasis added). The standard for determining whether the written description requirement has been met has been stated as follows:

Although [the applicant] does not have to describe exactly the subject matter claimed, ... the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed.... The test for sufficiency of support in a parent application is whether the disclosure of the application relied upon reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter.

Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 1563, 19 USPQ2d 1111, 1116 (Fed.Cir.1991) (citations and quotations omitted). Whether the written description requirement has been met is a question of fact. Ralston Purina Co. v. Far-Mar-Co. Inc., 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed.Cir.1985). Thus, we must determine whether substantial evidence supports the verdict that the written description requirement was met.

According to NEC, the recitation of "support means for supporting the memory module" *866

(Cite as: 993 F.2d 858, *866)

at an angle with respect to the printed circuit motherboard" was not supported by the original Clayton application, and therefore the claims in both patents are invalid. NEC notes that "support means" was not recited in the original claims, but was added by amendment. It alleges that the specification describes the leads of the memory modules as having only an electrical function, not a mechanical, support function.



[8] A patent specification is directed to one of ordinary skill in the art. In re Hayes Microcomputer Prods., Inc. Patent Litigation, 982 F.2d 1527, 1533, 25 USPQ2d 1241, 1245 (Fed.Cir.1992). It is also clear that "drawings alone may provide a 'written description' of an invention as required by § 112." Vas-Cath, 935 F.2d at 1565, 19 USPQ2d at 1118. Dr. Frey testified that Figure 2 "show[s] terminals as leads, which are means of supporting the module." Additionally, Dr. Frey stated, when discussing whether leadless SIMMs are disclosed in the patents, that a person of ordinary skill in the art would know that a leadless SIMM includes a row of terminals "to mount and support that module." He went on to state that "it's the edge of the card and the terminals that support the module." The inventor, Mr. Clayton, also testified that on leaded SIMMs, the leads themselves are the support means, and that on leadless SIMMs, the bottom row of terminals constitutes the support means. Thus, there is substantial evidence in the record to support the conclusion that the support means element is adequately described in the specification by the disclosure of both leads and the terminal edge of the modules. NEC has not shown that the district court's denial of JNOV on the issue of failure to meet the written description requirement was incorrect.

IV. Infringement

A. Lateral and 3-Pack Memory Modules

Toshiba and NEC both appeal that part of the judgment finding infringement under the doctrine of equivalents by the sale of their lateral and 3-pack memory modules. Toshiba argues that prosecution history estoppel bars application of the doctrine. Specifically, Toshiba argues that the 3-pack modules have three memory chips rather than nine, and the lateral modules do not have memory chips mounted only in a single row. They assert that both of these claim limitations were added to overcome rejections based on prior art. Accordingly, Toshiba argues, Wang is now estopped from claim scope given up during prosecution.



[9] Although Toshiba asserts that prosecution history estoppel applies to both its lateral and its 3-pack memory modules, NEC only raises estoppel with respect to its 3-pack modules and argues that its lateral modules do not infringe Wang's claims because they are leadless. Normally an issue not raised by an appellant in its initial brief is waived. However, "[t]his practice is ... not governed by a rigid rule but may as a matter of discretion not be adhered to where circumstances indicate that it would result in basically unfair procedure." Becton Dickinson & Co. v. C.R. Bard, Inc., 922 F.2d 792, 800, 17 USPQ2d 1097, 1103 (Fed.Cir.1990). In this case, we can hardly give one appellant

the benefit of an estoppel without giving it to the other, so we consider the defense of prosecution history estoppel as applicable to both Toshiba and NEC for both the 3-pack and lateral modules. Wang is not prejudiced by this because it was afforded the opportunity at trial and on appeal to address the issue with respect to the lateral modules. *See Singleton v. Wulff*, 428 U.S. 106, 120, 96 S.Ct. 2868, 2877, 49 L.Ed.2d 826 (1976). Moreover, in this case both parties relied on an estoppel defense at trial.

[10]  Prosecution history estoppel bars "a patentee from enforcing its claims against otherwise legally equivalent structures if those structures were excluded by claim limitations added in order to avoid prior art." *Mannesmann Demag Corp. v. Engineered Metal Prods. Co.*, 793 F.2d 1279, 1284, 230 USPQ 45, 48 (Fed.Cir.1986) (citations omitted). "In determining whether prosecution history estoppel applies because of a change in claim language during prosecution, the court must consider not only what was changed, but the *reason* for such change." *867

(Cite as: 993 F.2d 858, *867)

Vaupel Textilmaschinen KG v. Meccanica Euro Italia S.P.A., 944 F.2d 870, 882, 20 USPQ2d 1045, 1054 (Fed.Cir.1991) (citing *Sun Studs, Inc. v. ATA Equip. Leasing, Inc.*, 872 F.2d 978, 987, 10 USPQ2d 1338, 1345 (Fed.Cir.1989)). Whether estoppel applies is a question of law. *LaBounty Mfg., Inc. v. United States Int'l Trade Comm'n*, 867 F.2d 1572, 1576, 9 USPQ2d 1995, 1998 (Fed.Cir.1989).

[11]  [12]  Toshiba asserts that Wang specifically limited the scope of its claims to nine memory chips contained in a single row in order to overcome prior art and that Wang is precluded from recapturing what it gave up during prosecution. "Unmistakable assertions made by the applicant to the Patent and Trademark Office (PTO) in support of patentability, whether or not required to secure allowance of the claim, also may operate to preclude the patentee from asserting equivalency...." *Texas Instruments Inc. v. United States Int'l Trade Comm'n*, 988 F.2d 1165, 1174, 26 USPQ2d 1018, 1025 (Fed.Cir.1993) (citations omitted). "Depending on the nature and purpose of an amendment, it may have a limiting effect within a spectrum ranging from great to small to zero." *Hughes Aircraft Co. v. United States*, 717 F.2d 1351, 1363, 219 USPQ 473, 481 (Fed.Cir.1983). The prosecution history must be examined as a whole in determining whether estoppel applies. *Texas Instruments*, 988 F.2d at 1174, 26 USPQ2d at 1025.

In the first Office Action in Wang's parent application, [FN11] the claims were rejected under 35 U.S.C. § 103 as unpatentable over U.S. Patent 3,972,033 to Cislaghi, who teaches a memory module with multiple rows of nine chips. In Cislaghi the check bit, the ninth chip, is located on a separate module from the other eight bits. In response to the rejection, Wang replaced the filed claims so that they recited a printed circuit board substrate for mounting a plurality of memory chips in a single row. Wang stated:

FN11. Wang argued that the '513 claims were patentable for the same reasons that the '605 patent claim was allowed. Thus, we address the prosecution history of the parent application to determine whether estoppel applies to both patents.

The concept of applicant's invention lies in an improved memory module for installation on a printed circuit memory board. A single row of RAM memory chips, packaged in the plastic leaded chip carriers, is mounted on a printed circuit board (glass-epoxy) substrate....

Cislaghi et al. discloses a memory consisting of two "submodule" printed circuit cards wherein check bits for the first card are contained on the second card and vice versa. Applicant's invention as presently claimed has little in common with the disclosure of Cislaghi.... Cislaghi [does not] have memory chips mounted in a single row.... (Emphasis added).

Thus, Wang added claims which recited "mounting said plurality of memory chips thereon in a single row." (Emphasis added). The limitation of mounting chips "in a single row" was a basis for overcoming the Examiner's rejection based on Cislaghi. Unlike the teaching of Cislaghi, Wang asserted that its invention accommodated the size constraints of its memory module, noting "[t]he purpose of applicant's invention is to conserve space on a memory board." The "single row" limitation was clearly made for the purpose of overcoming the prior art.

After a second Office Action, Wang filed a preliminary amendment in a file wrapper continuation application in which it cancelled its previous claims and added a new claim, reciting "an epoxy-glass printed circuit board substrate having a length and width adequate for mounting thereon *only* in a single row said nine memory chips." (Emphasis added). In the "Remarks" section accompanying the preliminary amendment, Wang stated that "Cislaghi et al. teaches the advantage of locating a parity chip on a different printed circuit board...." Once again, these limitations were added to overcome the Examiner's rejection based on Cislaghi.

Wang argues that the prosecution history does not exclude a substrate having memory chips mounted in two rows,

but that the prior art only restricts the size of the substrate to one no larger than that on which nine DRAMs can be mounted. While a two-row construction may not read on the prior art, Wang limited the scope of its claims to memory chips mounted "only in a single row," and *868

(Cite as: 993 F.2d 858, *868)

twice argued before the PTO that Cislaghi did not have memory chips mounted in a single row. Although Cislaghi taught the advantage of locating a parity chip on a separate module, Wang did not limit its claims to a single module. Instead, it chose a single row, which excludes the accused modules of Toshiba and NEC. Wang chose to emphasize the specific dimensions of the printed circuit board taught by the invention and limited itself to exclude any embodiment in which the memory chips are not physically located in a single row. See *Litton Sys., Inc. v. Whirlpool Corp.*, 728 F.2d 1423, 1439, 221 USPQ 97, 107 (Fed.Cir.1984) ("A patent attorney is often faced with choices during a patent prosecution.... A patent attorney should not be able, however, to choose one course of action within the PTO with the anticipation that, if later checked, he or she can always choose an alternate course of prosecution in a trial before a federal judge."). Thus, the court erred in denying JNOV; prosecution history estoppel should have been applied to reach the conclusion that the accused lateral memory modules were surrendered during prosecution and therefore do not infringe under the doctrine of equivalents.

Likewise, Wang is also estopped from now arguing that the 3-pack memory modules having less than nine chips can infringe its claims. In the second Office Action, independent claim 4 was rejected under 35 U.S.C. § 103 as unpatentable over a publication by Electronic Designs Inc. (EDI) in view of an article by Lowe. The Examiner stated that the EDI publication showed all the elements of the recited claims except the use of PLCCs and that this technique was shown in Lowe. The EDI publication disclosed a memory module having eight chips and decoupling capacitors in which the module was leaded.

In response, Wang replaced its claims which recited "a plurality of data memory chips" with a new claim reciting "eight data memory chips" and "a ninth memory chip for storing error detection and correction information." In the "Remarks" section of its amendment, Wang argued that the EDI publication described "a single in-line memory module which consists of *eight* ceramic chips.... Applicant claims a single in-line memory module comprising *nine* memory chips (eight for data, one for parity)...." (Emphasis added). Wang also argued that "Cislaghi et al. is opposite to the teaching of the present invention, which claims ... a *ninth* memory chip...." (Emphasis added). Wang now argues that the prosecution history does not exclude use of three memory chips which function equivalently to nine memory chips. However, Wang limited the scope of its claims to nine chips. During prosecution, Wang distinguished the EDI publication, which taught the use of eight chips, by adding a claim reciting exactly nine chips. Wang is thus precluded from obtaining the benefit of the doctrine of equivalents for 3-pack memory modules. The court accordingly erred in denying JNOV as to that issue.

We therefore reverse that part of the court's judgment finding infringement by equivalence as applied to the lateral and 3-pack memory modules. Since the same estoppel exists with respect to both the '605 and '513 patents, our ruling applies to both patents.

B. Classic, Leadless Memory Modules



[13] NEC also appeals the denial of JNOV respecting the jury's verdict that NEC's leadless memory modules infringe the patents in suit. [FN12] NEC argues generally that none of its leadless modules infringes literally or under the doctrine of equivalents. NEC specifically states that the claims require a "support means" to hold the module at an angle to the motherboard and that the jury misconstrued the claims in finding that NEC's leadless modules infringe.

FN12. Toshiba does not appeal the judgment on this basis.

In response, Wang states that the sufficiency of the evidence underlying the district court's denial of JNOV on this issue is unreviewable on appeal since NEC failed to move for directed verdict on this ground. [FN13] NEC *869

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responds that it did move for summary judgment. We agree with Wang. Although it is true that the standard for summary judgment is virtually the same as that for a directed verdict, viz., that "there can be but one reasonable conclusion as to the verdict," *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 250, 106 S.Ct. 2505, 2511, 91 L.Ed.2d 202 (1986) (citation omitted), this does not mean that a motion for summary judgment is a substitute for a motion for directed verdict. Rule 50(b) of the Federal Rules of Civil Procedure requires a motion for a directed verdict as a prerequisite to a motion for JNOV. A motion for summary judgment before trial is not a substitute for a motion for directed verdict at the close of all the evidence.

FN13. Under amended Rule 50, Fed.R.Civ.P. 50 now refers to a directed verdict as a judgment as a

matter of law. We use the former terminology here.

NEC also asserts that on an issue of claim construction we need not review the sufficiency of the evidence, but can decide as a matter of law whether a leadless memory module can satisfy the support means element of the claims. We disagree. What is involved here are factual questions, not questions of law. As discussed earlier, the leads on the leadless SIMMs are in fact disclosed as support means in the specification. Whether leadless memory modules infringe the claims in issue is also a question of fact. See *Palumbo v. Don-Joy Co.*, 762 F.2d 969, 975, 226 USPQ 5, 8 (Fed.Cir.1985) (citing *D.M.I., Inc. v. Deere & Co.*, 755 F.2d 1570, 1575, 225 USPQ 236, 239 (Fed.Cir.1985)). Since NEC did not raise this factual issue in a timely manner, we are precluded from reviewing the sufficiency of the evidence supporting the jury's conclusion. This result also applies to both patents asserted and to arguments of literal infringement and the doctrine of equivalents.

V. Damages

[KC]

[14] The district court awarded damages to Wang based on a stipulated total of infringing sales and a reasonable royalty rate of 2.75%, assuming hypothetical royalty negotiations to have occurred in January 1990, the date Wang gave notice to Toshiba and NEC that their products infringed Wang's patents, rather than in April 1987, when the '605 patent issued. The district court stated that January 1990 is chosen because plaintiff is not entitled to any royalty damages prior to that date and because it is the date on which the parties actually would have engaged in negotiations over a reasonable royalty, had both sides been willing to do so. Hence, selection of this date best approximates the royalty that would have resulted had the defendants chosen to seek a patent license rather than to continue unlicensed production and risk being found to have infringed the patents. Nor is there any solid policy reason supporting selection of the earlier date, the date on which the patents issued and infringement of the invention technically began, but for which plaintiffs are barred by 35 U.S.C. § 287 from seeking damages.

Slip op. at 3.

Wang cross-appeals the district court's selection of the January 1990 date as the date when hypothetical negotiations were presumed to have occurred. Wang argues that negotiations should have been hypothesized at the start of infringement, i.e., when both a patent had issued and accused products were sold. We agree.

[KC] [KC]

[15] [16] In reviewing the district court's award, we must determine if the court abused its discretion in its methodology for determining a reasonable royalty rate. *SmithKline Diagnostics, Inc. v. Helena Lab. Corp.*, 926 F.2d 1161, 1164, 17 USPQ2d 1922, 1925 (Fed.Cir.1991). An abuse of discretion occurs when a court bases its determination "on clearly erroneous factual findings, legal error, or a manifest error of judgment." *Datascope Corp. v. SMEC, Inc.*, 879 F.2d 820, 823-24, 11 USPQ2d 1321, 1323 (Fed.Cir.1989), cert. denied, 493 U.S. 1024, 110 S.Ct. 729, 107 L.Ed.2d 747 (1990) (citation omitted). We conclude that the district court committed legal error in choosing January 1990 as the date when hypothetical negotiations began and therefore that it abused its discretion by denying Wang's motion to *870

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amend the judgment as to the reasonable royalty rate.

Under 35 U.S.C. § 284 (1988),

the court shall award the claimant damages adequate to compensate for the infringement but in no event less than a reasonable royalty for the use made of the invention by the infringer....

[KC] [KC]

[17] [18] When actual damages cannot be adequately proved, a reasonable royalty may be employed. *Fromson v. Western Litho Plate & Supply Co.*, 853 F.2d 1568, 1574, 7 USPQ2d 1606, 1612 (Fed.Cir.1988). "A reasonable royalty is the amount that 'a person, desiring to manufacture [, use, or] sell a patented article, as a business proposition, would be willing to pay as a royalty and yet be able to make [, use, or] sell the patented article, in the market, at a reasonable profit.'" *Trans-World Mfg. Corp. v. Al Nyman & Sons, Inc.*, 750 F.2d 1552, 1568, 224 USPQ 259, 269 (Fed.Cir.1984) (alterations in original; citations omitted). When an established royalty does not exist, a court may determine a reasonable royalty based on "hypothetical negotiations between willing licensor and willing licensee." *Fromson*, 853 F.2d at 1574, 7 USPQ2d at 1612. "The key element in setting a reasonable royalty ... is the necessity for return to the date when the infringement began." *Hanson v. Alpine Valley Ski Area, Inc.*, 718 F.2d 1075, 1079, 219 USPQ 679, 682 (Fed.Cir.1983) (quoting *Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1158, 197 USPQ 726, 731 (6th Cir.1978)); see also *Fromson*, 853 F.2d at 1575, 7 USPQ2d at 1613 (hypothetical royalty negotiations methodology "speaks of negotiations as of the time infringement began").

[19] In choosing the January 1990 date, the district court failed to follow our precedent. It is not illogical to hypothesize a negotiation at the time of notice. After all, an accused infringer may not know of the patents until notice is given. Nonetheless, this case is governed by the rule in *Fromson*, in which hypothetical negotiations were determined to have occurred when the infringement began, which was the date the patent issued, even though, under 35 U.S.C. § 286, the infringer was only liable for damages for the six years prior to the filing of the infringement action. In this case, infringing products were being sold on the date of issuance of the '605 patent. Therefore, under *Fromson*, hypothetical royalty negotiations should have been considered to have occurred on the patent issuance date. It is true that limitations may apply to the period for which damages may be recovered. As in the present case, failure to mark patented goods is a limitation on recovery of damages, in the absence of notice. 35 U.S.C. § 287 (1988). However, the court confused limitation on damages due to lack of notice with determination of the time when damages first began to accrue, and it is the latter which is controlling in a hypothetical royalty determination. Thus, the district court abused its discretion by denying Wang's motion to amend the judgment as to the reasonable royalty rate.

CONCLUSION

We reverse the district court's judgment denying NEC's and Toshiba's joint motion for JNOV on the issue of infringement by NEC's and Toshiba's sale of lateral and 3-pack memory modules under the doctrine of equivalents. We reverse the court's judgment awarding damages at a 2.75% royalty rate, and we remand for a determination of damages at a 4.0% royalty rate. We affirm the judgment in all other respects.

COSTS

Each party is to bear its own costs.

AFFIRMED-IN-PART, REVERSED-IN-PART, AND REMANDED-IN-PART.

C.A.Fed. (Va.), 1993.

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Briefs and Other Related Documents (Back to top)

- [1992 WL 12013738 \(Appellate Brief\)](#) Reply Brief for Plaintiff/Cross-Appellant Wang Laboratories, Inc. (Apr. 13, 1992)[Original Image of this Document \(PDF\)](#)
- [1992 WL 12013737 \(Appellate Brief\)](#) Reply Brief for Defendants-Appellants Toshiba Corporation; Toshiba America Electronic Components, Inc.; Toshiba America Information Systems, Inc. (Mar. 30, 1992)[Original Image of this Document \(PDF\)](#)
- [1992 WL 12013735 \(Appellate Brief\)](#) Brief for Defendants-Appellants Toshiba Corporation; Toshiba America Electronic Components, Inc.; Toshiba America Information Systems, Inc. (Jan. 07, 1992)[Original Image of this Document with Appendix \(PDF\)](#)
- [1992 WL 12013736 \(Appellate Brief\)](#) Brief for Appellants NEC Corporation, NEC Electronics Inc. and NEC Technologies, Inc. (Jan. 07, 1992)[Original Image of this Document \(PDF\)](#)

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